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1. Recent Additions to our Knowledge of the Copper Age Antiquities of the Indian Empire.

By Hīrānanda Śāstrī.

[With Plates I—V.]

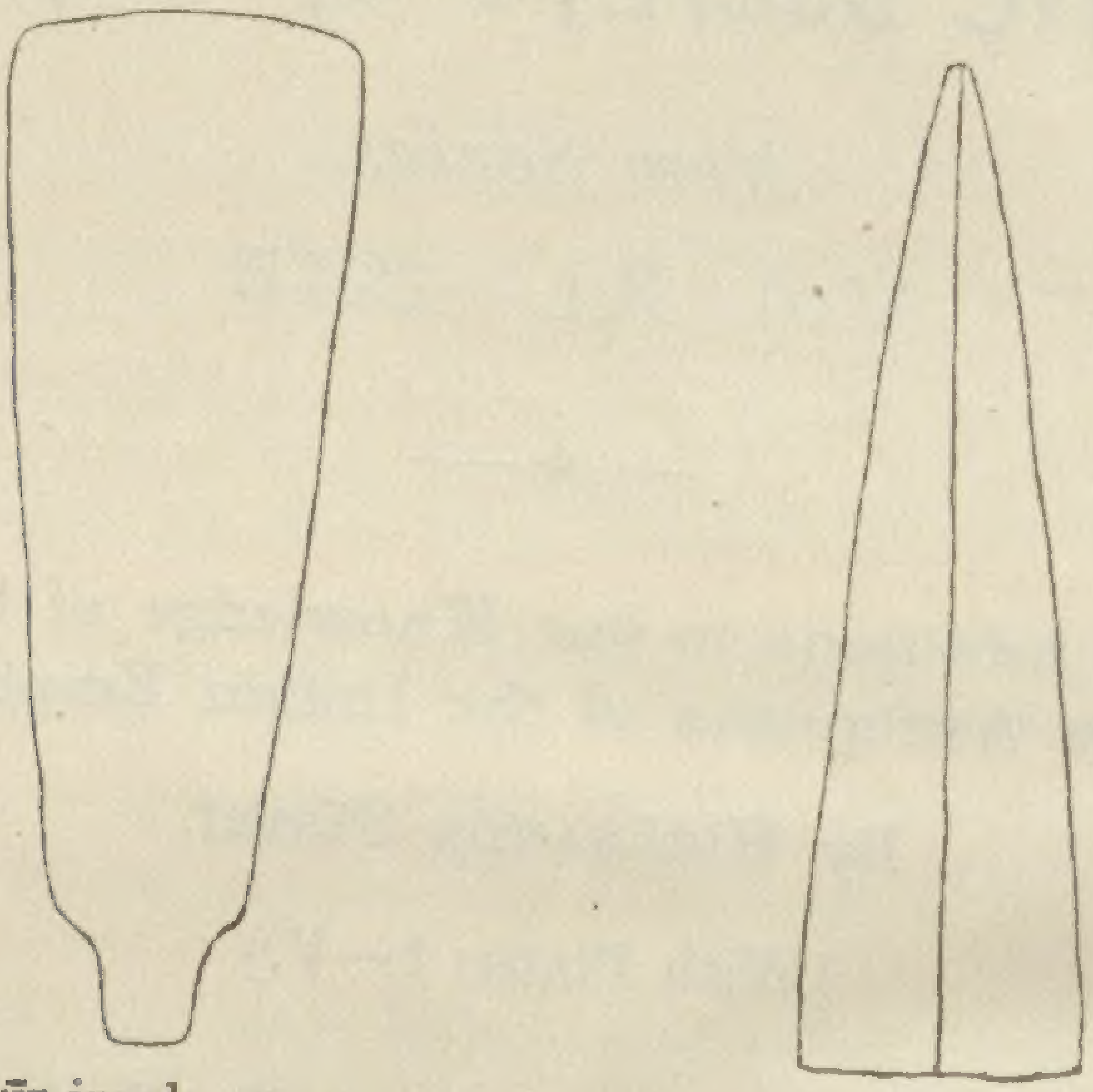
Since the supplementary note of Mr. V. A. Smith, I.C.S. (Retd.) on the Copper Age and Prehistoric Bronze Implements of India, which appeared in volume XXXVI of the "Indian Antiquary" some fresh material has come to light which I propose to notice briefly here. Before doing so I am to point out that the Plate VI in Mr. Smith's article represents two different sets of implements. The row on the top of the plate shows the implements which I purchased in 1904 from the people of Biṭhūr. These have been presented by the Director General of Archaeology in India to the Lucknow Provincial Museum where they are now preserved. The remaining two rows represent those which are deposited and worshipped at the temple of Rādhākṛishṇa which stands on the Brahmāvarta Ghāṭ and is in charge of Sādhu Raghubar Dās of Biṭhūr. Beginning from the proper right side of the uppermost row these implements measure $5\frac{1}{4}'' \times 4\frac{3}{4}''$, $6\frac{3}{4}'' \times 3\frac{3}{4}''$, $4\frac{1}{2}'' \times 2\frac{7}{8}''$, $5\frac{5}{8}'' \times 1\frac{1}{4}''$, $4\frac{1}{2}'' \times 4\frac{3}{4}''$, $6\frac{1}{2}'' \times 2\frac{1}{4}''$, $6'' \times 4\frac{1}{4}''$, $7\frac{3}{4}'' \times 6''$, $11\frac{1}{2}'' \times 2\frac{1}{4}''$, $6'' \times 7''$, $7\frac{1}{8}'' \times 6\frac{1}{8}''$, $9\frac{1}{2}'' \times 3\frac{1}{3}''$, $8\frac{1}{8}'' \times 3''$, and $6'' \times 6\frac{1}{2}''$ respectively. Thus the scale for Mr. Smith's plate would be about $\frac{1}{3}$ for the top row and about $\frac{1}{4}$ for the rest. A drawing of a few of these objects is added below to form an accurate idea of their size. (Plate I).

In weight the arms represented on the top vary between

87·42 and 19·44 *tolas* or 36 and 8 ounces, while those on the lower rows between 58 and 118 *tolas* or 19·04 and 48·13 ounces.[1]

Regarding the Pariar implements photographed on Plate VII in Mr. Smith's paper, I have to point out that the first three beginning from the proper right side are deposited in the temple of Rādhākrishṇa and the last two in that of Jānakī Jī at Pariar.[2] They measure $6\frac{5}{8}'' \times 4\frac{1}{2}''$, $8'' \times 7''$, $10'' \times 2''$, $4'' \times 3\frac{3}{8}''$ and $5\frac{1}{2}'' \times 3\frac{1}{2}''$, respectively. The scale, therefore, for the plate would be about $\frac{1}{3}$.[3]

Fig. 1.



(Biṭhūr implement.) (Pariar implement.)

In this connection I may add that the bent implement figured at the end of the top row of Plate VI does not resemble at all any of the Pariar implements represented on plate VII. Both of them are different objects and neither of them is a duplicate of the other It is true that both are bent, but the bend did not exist originally. In the Pariar specimen it is the head which is twisted, but in the specimen from Biṭhūr the bottom side has been turned round. When straightened they would be as sketched below and this must have been their original shape.

[1] The information about the weights of the implements shown on the two lower rows I owe to the courtesy of F. O. Oertel, Esq., Superintending Engineer, P.W.D., Allahabad.

[2] Pariar is regarded to be the place where Sītā was finally deserted. The name is connected with Sanskrit *Parihara* or *Parihāra* and derived from *pari* + $\sqrt{hr}$ meaning to put aside, leave or desert. The tract round this place and Biṭhūr is associated with the last scenes of the Rāmāyaṇa. The hermitage of Vālmīkī is still pointed out at Biṭhūr as also the chasm where Sītā was swallowed up by the earth.

[3] The dimensions given in the Progress Report of the Punjab and U.P. Circle for 1903-4, p. 21, are of the photographic plates used and not of the implements as Mr. Smith appears to have taken.

I do not think that the Pariar specimen is new to science. It is only the fragment of the blade of a copper sword such as is figured in Plate III in Mr. Smith's previous article [1] or is noticed below (Plate II, No. 1).

I shall now deal with the fresh material. The temple of Bāvā Gūdardās Uttam Dās which stands in the heart of the town of Bithūr contains three copper hatchets of almost identical shape and dimensions. I noticed them in 1904. They measure about 7″ long and $4\frac{3}{4}$″ broad and mostly resemble those which have already been described by Mr. V. Smith or are shown below. One similar specimen, though smaller ($5\frac{1}{4}$″ × $3\frac{3}{8}$″) was brought to my notice last year. It is lying in the above mentioned sanctuary of Rādhākrishna on the Brahmāvarta Ghāt. Another tool of this kind ($4\frac{3}{4}$″ × $2\frac{1}{2}$″) has been seen in the temple of the same name which stands at Pariar. A hatchet which is different from all these types but resembles one of Mr. Oertel's finds (Plate II, No. 3) is kept in the temple of Jānakī Jī at Pariar. It measures $4\frac{3}{8}$″ × $1\frac{5}{8}$″ and is only $\frac{1}{8}$″ thick.

Mr. F. O Oertel, Superintending Engineer, P.W.D., Allahabad, has secured four fine specimens from Bithūr and has kindly sent me their drawings. One of them is a spear head with a row of two teeth on each side below the blade and is said to have been found in the Ganges. It weighs 61 *tolas* or 1 lb. 9·0964 oz. The other is a copper hatchet weighing 90 *tolas* or 2 lbs 5·028 oz. The third is a sword and has a close resemblance with the swords from Fatehgarh now preserved in the Indian Museum, Calcutta. It weighs 39 *tolas* or 16·0448 ounces. The fourth is a small copper hatchet and weighs 16 *tolas* or 6·5825 ounces. It is almost identical with the one which is deposited in the temple of Jānakī Jī at Pariar that has just been noticed. Plate II illustrates them.

Some three years ago I obtained through the agency of my family priest four specimens of these implements which I list below. These are illustrated in Plate III.

(1) Harpoon ($14\frac{1}{2}$″ long and 2″ wide). It has four prongs or teeth on each side, though one is now broken. The first two prongs near the blade are twisted and the remaining ones are pressed towards the sides. The prongs are, as is seen in the specimens of the Lucknow Museum, under the short blade of the weapon. A circular hole on one side is apparently meant to fasten the tool to a wooden handle. It weighs 87 *tolas* or 2 lbs. 3·7939 oz.

(2) Harpoon (13″ long and $2\frac{3}{8}$″ wide) with a row of two prongs on each side below the long blade. It resembles Mr. Oertel's specimen and other types of the kind which have

[1] *Ind. Ant.*, Vol. XXXIV, pp. 236ff. A similar fragment is deposited in a shrine near the so-called hermitage of Vālmīki at Bithūr.

already been noticed by Mr. Smith. It weighs 55 *tolas*, or 1 lb. 6281 oz. and is very well preserved.

(3) Hatchet ($6\frac{1}{2}''$ long and $3\frac{7}{8}''$ broad) weighing 70 *tolas* or 1 lb. 12·799 oz.

(4) Hatchet ($5\frac{3}{4}'' \times 3\frac{1}{4}''$) weighing 49 tolas 6 *mashas* and $2\frac{1}{2}$ *ratis* or 1 lb. 4 oz. and 6 drams.

I got these implements chemically examined and found that they are all made of copper. In fact almost all such tools which we find in Northern India are of this metal. They have a dark bronze colour and are shaded green with verdigris. But immediately they are scratched the bright copper colour at once appears.

To this lot I am able to add six more specimens which have lately been added to the Lucknow Provincial Museum. Three of these, namely, an axe-blade (Plate IV, No. I), measuring

FIG. 2.

(Sketch of a harpoon by Mr. V. Smith.)

$7\frac{1}{16}'' \times 5''$ and weighing 2 lbs. 8 oz. or 1555·5 *tolas*, a sword (No. 2) measuring $1'\ 6\frac{1}{2}'' \times 2\frac{1}{2}''$ and weighing 2 oz. or 1244·3 *tolas*, and a fragmentary flat celt (No. 3) measuring $5\frac{1}{4}''$ square and weighing 2 lbs. 4 oz. or 1399·9 *tolas* were found in a *Kherā* or mound at Manpur in the Bulandshahr district. The handle of the sword or dagger does not resemble that of any other specimen yet found. One (No. 4), viz. a hatchet, measuring $6'' \times 4''$ and weighing 2 lbs. 12 oz. or 1711 *tolas*, was discovered at village Kamalpur, Police station Ghausganj, District Hardoi. One of its lower corners is broken. These were found in July 1911 and presented to the Museum by the respective District Officers. The remaining two (Nos. 5, 6) have recently been purchased for the Museum from Bithūr and are celts of ordinary type One of them (No. 5) is a fragment measuring $2\frac{3}{4}'' \times 2\frac{1}{2}''$ and weighing 1 lb. or 622·3 *tolas*. The

other (No. 6) though complete is broken into two pieces. It measures $7'' \times 5\frac{7}{8}''$ and is 3 lbs. or 1866·6 *tolas* in weight. These are illustrated in Plate IV.

To the above lists four more implements are to be added. One of them is a sword which is in the possession of Mr. A. R. H. Murray of the U. P. Police Department, and, as I am told, was obtained from the Hardoi district. Dr. A. Venis, C.I.E., I.E.S. (retd.), kindly got a photograph of it for me, which though not scaled shows that it is identical with the specimen found by Mr Oertel that has just been noticed (Plate II, No. 1). Information regarding the remaining three I owe to the courtesy of Mr. V. A. Smith who has very kindly sent me a rough sketch copied below and the following note on them :

"Some time ago Canon Greenwell of Durham sent me photos of three harpoons evidently Indian picked up from dealers in England.[1] Two have two recurved hooks each, the third $14\frac{1}{2}''$ long, weighing 1 lb. 8 oz., has a triangular blade and triangular barbs—so"

I may mention here one more tool which has very recently been noticed in the Annual Report of the Archaeological Survey of India, Frontier Circle, for 1913-14. Unfortunately no particulars of it are given. It is, however, said to be a "very interesting ancient copper celt which was given by Captain R. A. Lyall, I.A., Political Agent of Kurram" as a present to the Peshawar Museum where it is now probably deposited.[2] It is illustrated in Plate V.

Taking into consideration all the copper implements which have now been mentioned or were noticed before by Mr. Smith it can be seen how rich a copper cultivation had been in Northern India. The Cawnpore and to some extent the Unao district appear to have been very rich in its development. Out of the whole of these implements the majority appear to have been found in Cawnpore. Apparently they were meant for killing crocodiles, alligators, etc: rather than as weapons of war. But their shape does not fail to remind the reader of the Sanskrit epics of the different varieties of the arrows mentioned in them. Besides this the *paraśu* (axe or hatchet) is also well known as a weapon of warfare.

This brief note is meant to supplement the information

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1 I understand these specimens were originally obtained by Mr. C. T. Tiechmann of Castle Eden, Co. Durham.

2 I have recently described this celt, together with another specimen found in the Palamau district, Bihar, in a note which will be published in the Annual Report of the Director General of Archaeology in India. To bring the list of copper age finds up to date mention must be made of a beautiful copper arrow head recently discovered near Campbellpur and now in the possession of a resident there.

J. Coggin Brown,
Anthropological Secretary.

about the copper or bronze antiquities of India which was hitherto available, and it is hoped that archaeologists will utilize it for discussing the problems connected with the prehistoric archaeology of this country.

P.S.—A dealer in Lucknow has got one harpoon which I saw only last week. Like the specimen I acquired (No. 2, Plate III) it has a row of two prongs below the blade, the fore part of which is broken off. It measures $7\frac{3}{4}''$ by $2\frac{3}{4}''$ and weighs 1 lb. or $37\frac{1}{2}$ tolas.

I have just got two more hachets from Biṭhūr. They are identical in shape with Nos. 3 and 4 of Plate IV and weigh 2lb. 4oz. and 1lb. 4oz. respectively.

H. S'ASTRI.
8-4-15.

DESCRIPTION OF PLATES.

PLATE I.

Copper implements in the temple of Rādhākrishṇa at Biṭhūr District, Cawnpore. Scale $\frac{4}{15}$ of full size.

PLATE II.

Copper implements secured by Mr. F. O. Oertel from Bithur in 1912. Scale $\frac{4}{15}$ for No. 1, and $\frac{2}{15}$ for the rest.

PLATE III.

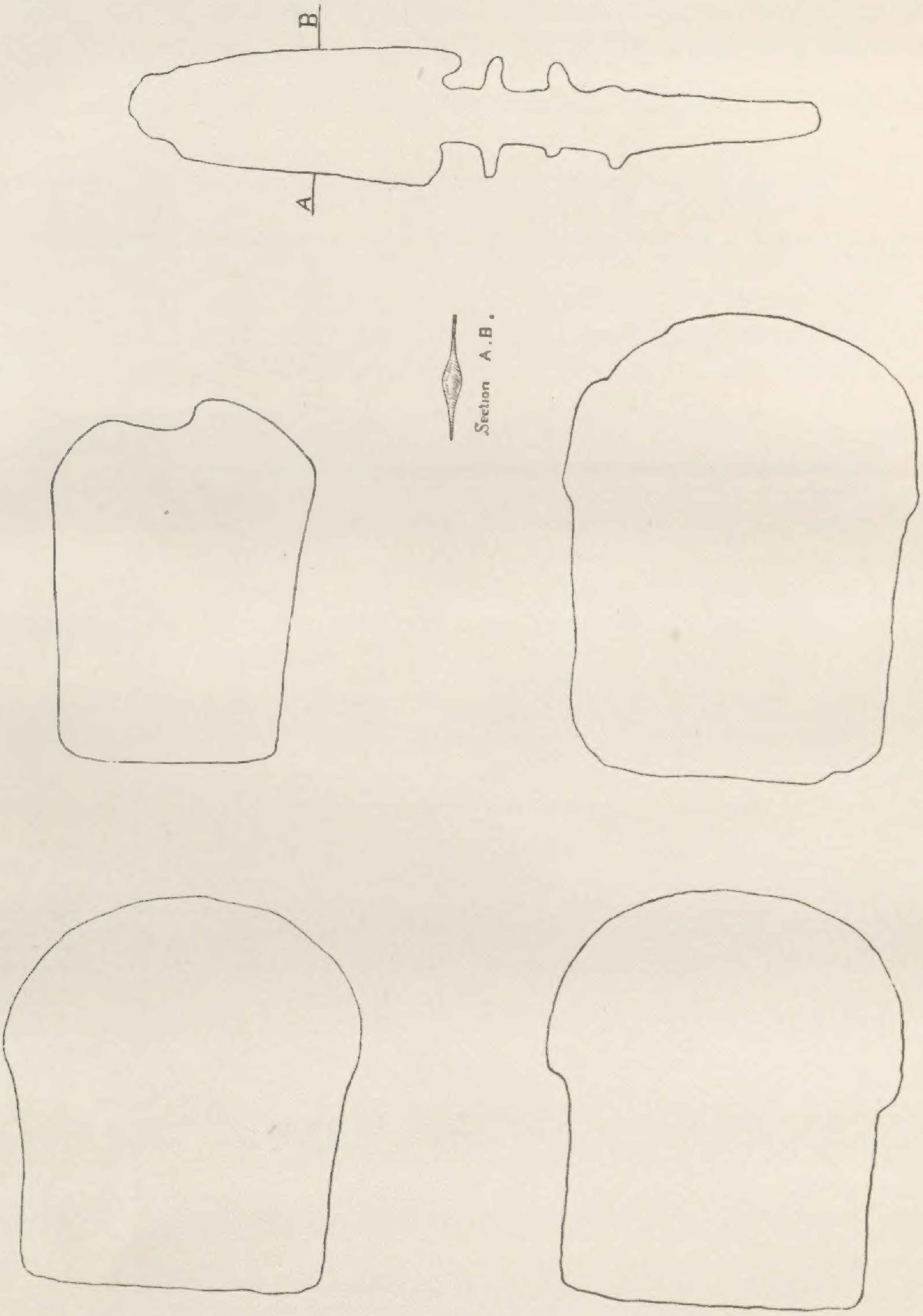
Copper harpoons and hatchets purchased at Bithur by Pandit Hirananda Shastri in 1911.

PLATE IV.

Copper antiquities from Bulandshahr and Hardoi districts in the Lucknow Provincial Museum.

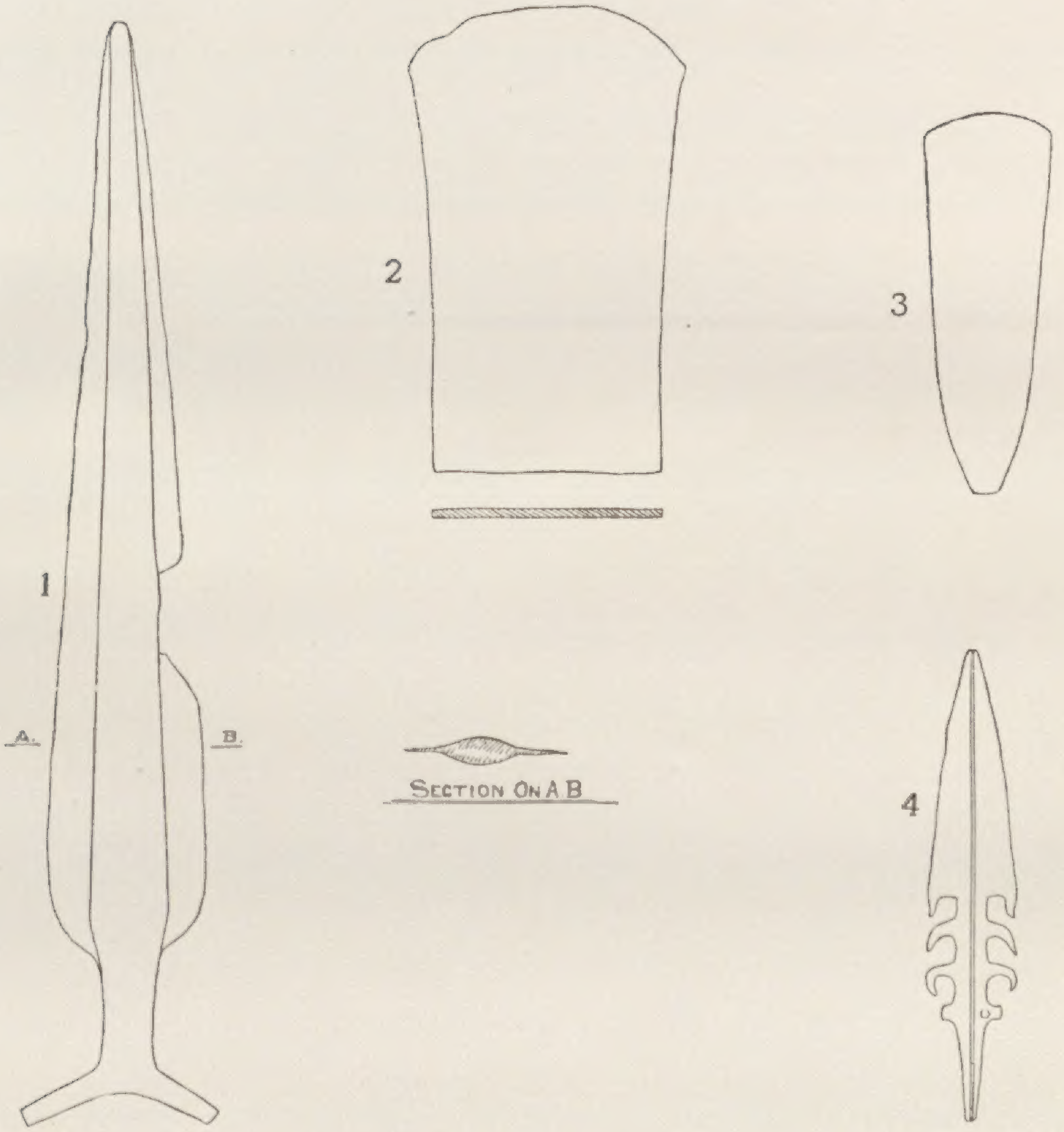
PLATE V.

Copper celt in the Peshawar Museum.



Scale of drawing ($\frac{4}{15}$ of full size.)

Copper implements in the temple of Radha Krishna,
at Bithur District, Cawnpore.



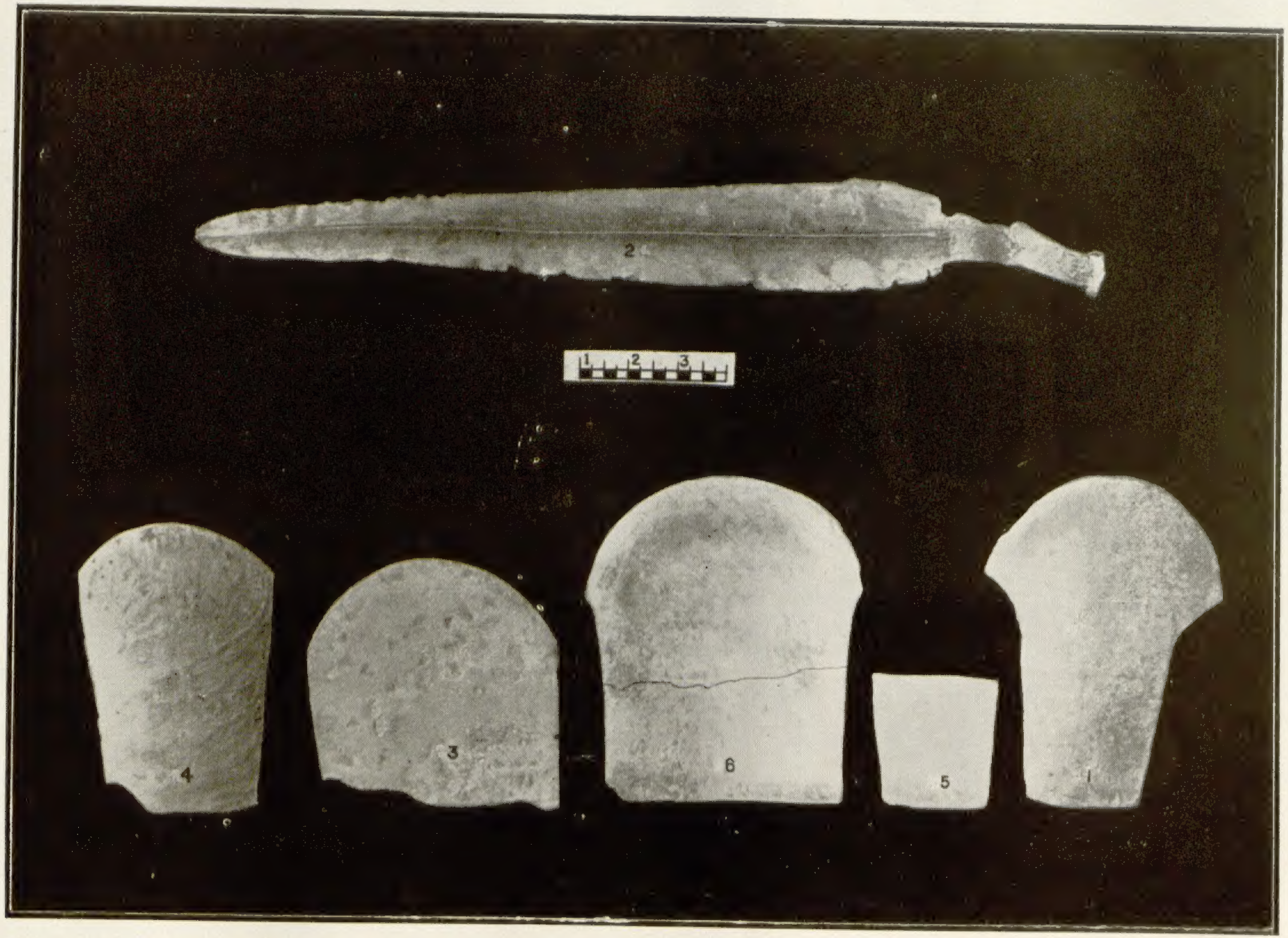
WEIGHT 39 TOLAS

Scale $\frac{4}{15}$ of full size

Scale $\frac{2}{15}$ of full size.

Copper implements secured by Mr. F O. Oertel from Bithur in 1912.

Copper harpoons and hatchets purchased at Bithur by Pandit Hirananda Shastri, in 1911.



Copper antiquities from Bulandshahr and Hardoi districts in the Lucknow Provincial Museum.

Copper celt in the Peshawar Museum

2. Grafting the Mango Inflorescence.

By W. Burns, D.Sc., *Economic Botanist, Bombay*, and
S. H. Prayag, B.Ag., *Bombay Agricultural Department.*

[With Plates VI—VIII.]

[Read at the Second Indian Science Congress, Madras, January 1915.]

The inflorescence of the mango (*Mangifera indica*, L.) often becomes wholly or partly vegetative. The first sign of this vegetative character is the production of foliar bracts on the main axis. The flowers occurring on such an inflorescence are perfectly normal and set fruit. The extreme case is where the inflorescence is in every respect like a vegetative branch, but has one small secondary flowering axis. Between these two extremes many variants occur, and one of the most interesting is that in which one side of the inflorescence is reproductive, while the other side is vegetative. A case of this kind was recorded in the Journal and Proceedings of the Asiatic Society of Bengal, New Series, Vol. III, p. 427, in an article by Burkill and Bose, entitled "An Abnormal Branch of the Mango." This is, as far as we know, the only published record of such a phenomenon. It is not rare, however, and the present writers come across some examples every year. Burkill and Bose, after dealing with the phyllotaxy, devoted most of their attention to the correlation of external morphology and internal structure, and showed that, in the case studied, the vascular tissue was thicker on the foliage side of the axis, and that this was mainly due to the greater development of the xylem. The vessels on that side were moreover wider, and there was a greater development of the wood-fibres.

In the cases examined by us, the same characters have been noted, and in addition, a sharp change is seen in the epidermis at the line of junction of vegetative and foliage parts. The epidermis of the vegetative part has the long cells and thick cuticle characteristic of the leafy branch, while the other part has the short cells and thinner cuticle of the inflorescence. The sclerotic cells in the cortex of the vegetative part come to a sudden stop at the line of junction.

We have succeeded in reconstituting artificially the above natural variation of the inflorescence. On February 6th, 1914, six inflorescences were enarched on to the top of one-year-old "country" stocks, one inflorescence to each stock. The scions were separated from the parent plants in the second week of May, 1914. The inflorescence grafts were photographed on June 6th, 1914 (Plates VI, Fig. 1 and VII). Three of the

scions were of the Alphonse variety. In each case the scion had foliar bracts on the lower part. This part survived, retaining its leaves; the upper non-foliar part died. There was no fruit on any of these scions. The other three scions were of the Sakharia variety, without foliar bracts and each with one well-formed fruit at the time of grafting. No part of any scion died while the fruit remained on the tree. The fruits increased a little in size during this period. The fruit in the illustration, when removed on June 8th, weighed 200·7 grams. On sectioning the point of junction of the stock and scion in this plant, it was found that the two parts had united by a callus that had afterwards been penetrated by cambium joining up that of the scion and that of the stock. At the time of sectioning, the xylem cylinder was continuous.

One of the Alphonse scions first mentioned produced an axillary vegetative shoot. This whole plant was transferred to the field to give the shoot a chance to make good growth. It is worthy of note in this connection that in nature a mango inflorescence may persist as a vegetative axis and become incorporated into what looks like a normal branch.

Another series of grafting experiments was made, in which one inflorescence was grafted on another while bearing fruit. Plate VI, Fig. 2 shows an example. This particular graft was made on March 19th, 1914, and photographed on June 18th, 1914. Out of 50 such grafts 26 succeeded, and in one case the scion made vegetative growth in March and May, as shown in Plate VIII. In most cases the inflorescences operated on withered after the fruit was removed.

Conclusions.

The inflorescence of the mango is as a rule a fugitive structure. Its life, however, is sufficiently long and its structure sufficiently advanced, to allow of its being grafted either on another inflorescence or on a vegetative branch. As a rule, the inflorescence thus grafted dies after the fruit on it is ripe, but may persist and put out vegetative axillary branches.

EXPLANATION OF PLATES.

Plate VI, Fig. 1.—See description of Plate VII.

Plate VI, Fig. 2.—Result of grafting one inflorescence on another while bearing fruit

Plate VII.—Sakharia scion with one fruit, enarched on jungly one-year-old stock. The fruit increased slightly in size from the time of grafting.

Plate VIII.—Graft of inflorescence on inflorescence made on 19th of March, 1914. Scion detached from parent branch and apex of stock removed on the 1st of July, 1914. The scion grew vegetatively from March to May, 1914.

Fig. 1.

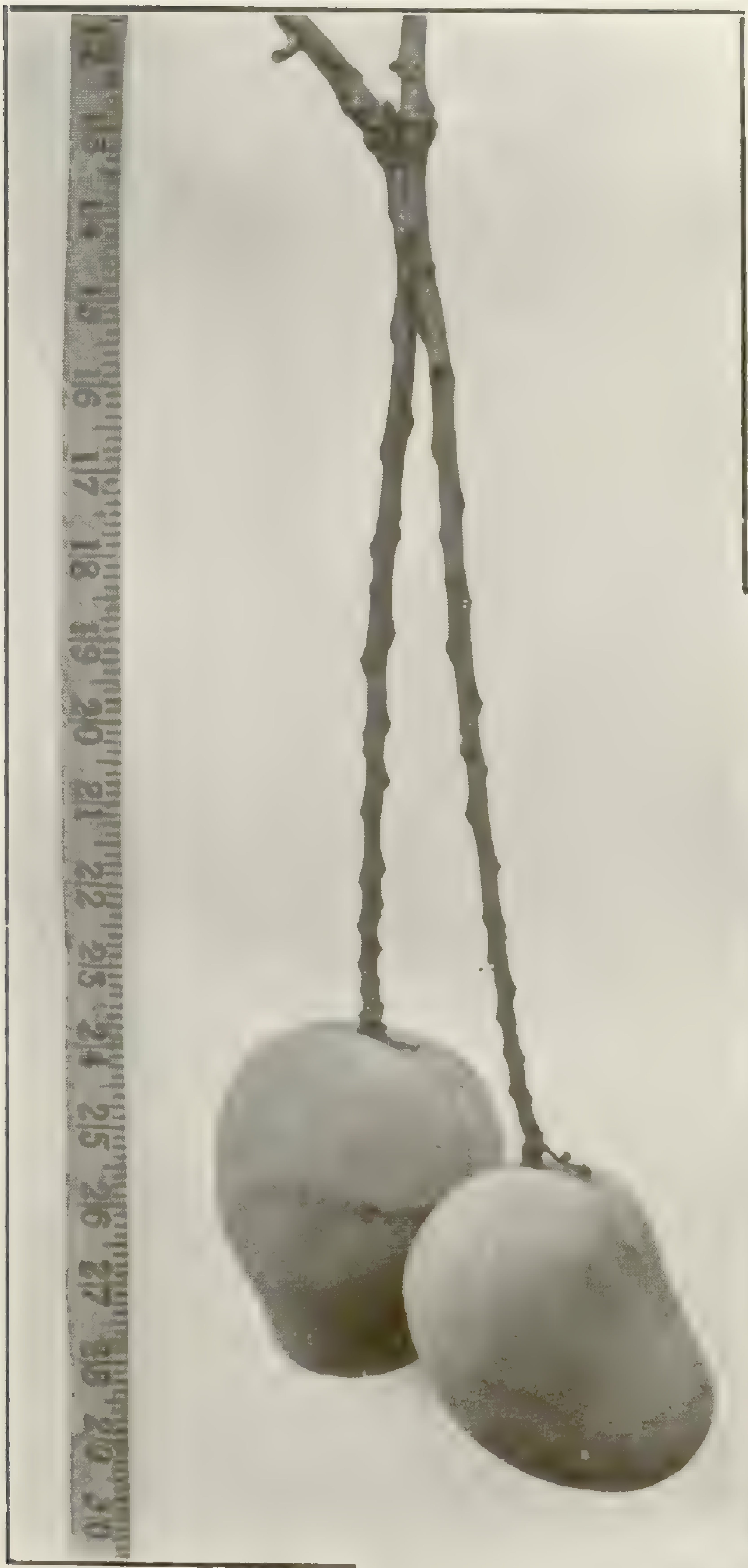


Fig. 2.

MAY GROWTH
MARCH GROWTH
INFLORESCENCE WITH NO FRUIT.
INFLORESCENCE WHICH HAD ONE FRUIT
VEGETATIVE BRANCH.

3. **The Weighing Beam called *Bisá dángá* in Orissa, with Short Notes on some Weights and Measures still current among the Rural Population of that Division.**

By B. L. Chaudhuri, D.Sc., F.R.S.E., F.L.S.

[Plate IX.]

(Published by permission of the Trustees of the Indian Museum.)

In the Memoirs of the Society, Vol. I, Part I, in the section *Miscellanea Ethnographica*, Dr. N. Annandale described some Indian weighing beams, one of which he found in the District of Madura in Madras in 1905, used as a steelyard with a pan and a sliding fulcrum but without any movable weight along the long arm, somewhat in the manner of the "bismar" recently in use in the Faroe Island, Orkney and other isolated Scandinavian districts. Recently he came across a similar weighing beam in use in parts of the District of Puri. The local name of this implement is *Bisá*, a name strangely similar in sound to the Scandinavian *Bismer* or *Bismar*. Dr. Annandale requested me to find out all available information about this weighing beam, and the present paper embodies all that I could gather in my last short visit to those parts.

During my last visit to Rambha (in the District of Ganjam in Madras) and Barkul (in Puri) on the Lake Chilka, I found this kind of weighing beam in extensive use among the fish-sellers, vegetable-vendors and sellers of turmeric (*Haldi*, i.e. *Curcuma longa*) etc. The unit of weight is termed *Bisá* and the wooden beam is known among the people of the locality as *Bisá bári* (*Bari* = wood) or *Bisá dángá* (*dángá* = stick). It has a cane or a split bamboo pan called *paralhi*. The unit weight called *Bisá* probably varies in different parts of Orissa, but so far as I could ascertain the current *Bisá* weight in Ganjam (including Russelkonda) and in Puri (at least in Barkul and Balugaon) corresponds to 180 *tolás* of standard Indian weight One tola = 180 grains troy in English weights.

The weight by *Bisá dángá* and measure by *Addhá* (measures generally prepared by cut pieces of bamboo which will be noticed afterwards) comprise the whole system of weights understood and extensively employed by the villagers, who do not appreciate nor understand any other kind of measurement. I therefore think that some information about these systems of weights and measures still current among the people of Orissa may not prove altogether useless or uninteresting to the members of the Society—more so as

Hunter's Statistical Accounts of the Province, as well as the later District Gazetteers of the Division of Orissa, even under the headings "Measures and Weights," appear to have totally ignored these popular and current methods of measurement. The only mention of *Bisá* in the published official records which I have been able to come across is in the "Final Report on the Survey and Settlement of the Province of Orissa, 1890 to 1900," by Mr. S. L. Maddox, where "*Bisákáti*" is explained as "a steelyard used for weighing vegetables, fish and utensils, etc.", and "*Bisá*" as "the unit of weight weighing one hundred and twenty tolás or one and a half standard seers divided into 20 to 30 *pals* and equal to one-eightieth part of *chhala.*" (Glossary. Settlement Report. By S. L. Maddox.)[1] This may have reference to other parts of Orissa, but in Barkul, Balugaon and Rambha, as I have already mentioned, *Bisá* stands for 180 *tolás*, being equivalent to thirty *palas* (not twenty *pals*) of six *tolas* each. Careful investigation as to three different equivalents of *Bisá* in different parts of Orissa and its manner and cause of variation from place to place is also necessary.

I have reason to believe that the *Bisá* system is current throughout the *Uria*-speaking districts, including Ganjam (Russelkonda, etc.) in Madras, and the sub-division of Kanthi (Contai) in Midnapore, together with all the *Garjats* in Orissa and the Central Provinces, and that the measure *Addhá* (or *Oddá*) is co-extensive. In fact I believe *Addhá* and *Bisá* entirely cover all possible weights for all manner of liquids and solids among the retail sellers, producers and hawkers throughout the villages of Orissa.

Equal-armed balances with the fixed fulcrum in the middle and with two pans are used by the *mahajans* (i.e. big shopkeepers and traders). These balances are termed *Taráju* in *Uria* and the weights are termed *gunds* and *bats.* These weights are too complicated and the apparatus too difficult to carry about for the simple villagers, who have to hawk their produce and stock-in-trade from door to door. *Addhá* is excellent for measuring all kind of articles that can be measured in a hollow vessel, but it is of no use for fish, vegetables, turmeric, etc.; that is the reason why the use of this simple and portable weighing beam with a single pan has survived in these parts.

These beams are gradually tapering, roughly-rounded wooden rods with holes near the narrow ends to pass the loops for suspension of the single pan. The pans are generally made of Cane or

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[1] Mr. T. Motte also evidently refers to this beam without mentioning any name. "They use stilliards instead of scales." ["A Narrative of a Journey to the Diamond Mines at Sumbulpoor in the Province of Orrissa" by Mr. T. Motte (1766)—Published in the Asiatic Annual Register for 1799.]

of split bamboo suspended by means of strings through the holes near these narrow ends already mentioned; the pans are generally coated with clay or some other suitable coating material to make them smooth, and at the same time to load them conveniently and sufficiently to make them equal in weight to the standard pan with reference to which the scale is inscribed in any particular beam.

The beams that have been passed round were bought at a shop at Rambha (Ganjam) at the beginning of January this year. They are marked A and B for reference. Both are made of *Sal* wood (*Shorea robusta*) which is heavy and strong.

The beam marked A is 58·8 cm. in length, round and gradually tapering from diameter 3·2 cm. on the broad end which (for the position of the beam in weighing) we may also call as the left end, to diameter 2 cm. on the narrow end which is also the right-hand end. The hole through which a loop of string hangs for the suspension of the pan is close to and is only 5 cm. from the narrow end. The graduation of the scale occupies just 15 cm. beginning at 35 cm. from the broad end and ending at 8·8 cm. from the narrow end. The scale consists of 17 ring marks, i.e. circular thin grooves at right angles to the length (axis) of the beam, the grooves being more prominent on the top side of the beam. The sixth, the eleventh, the thirteenth and the sixteenth rings have got cross marks (×) inscribed above them on the top side of the beam. The beam with the pan is suspended from hand by means of a piece of string tied round the beam which can slide along the beam. The position of this sliding loop of the string in the scale at which it brings the beam at a horizontal position, indicates the weight of the article in the pan.

The length of the beam marked B is 55·5 cm. This is also roughly rounded (i e. not turned in a lathe) and is gradually tapering from diameter 3·3 cm. on the left end to 2 cm. in the narrow right-hand end. The pan is suspended by means of a looped string passed through a hole which is 4·8 cm. from the narrow end. The scale begins at 33·5 from the broad end and ends at 8 cm. from the narrow end occuping 14 cm. of the beam in which 17 rings are inscribed at right angles to the length of the beam, four of which rings, as in the other beam marked A, are marked on the top side with cross marks (×) deeply inscribed signifying their importance over the rest of the scale.

On comparison of the two beams bought at Rambha, it is clear that no uniformity as to size of beam or of scale is observed. Beams are prepared in the ordinary way, and the scale is inscribed, a known quantity of weights in the pan being suspended. The correct position of the sliding loop on the beam being indicated by marks, which are inscribed when the beam assumes a perfectly horizontal position for each weight.

The *Bisá* in Ganjam and Puri is divided into 30 *palas*, each *pala* being equivalent to six *tolás* of standard weight. In some parts *Bisá* is divided into 20 *palas* (when it is also called *Vis*) and in some places into 18 palas (as in Balasore in weighing salt). In some places again it consists of 24 *palas* (as in Cuttack). The weight of a *pala* is however everywhere six *tolás*. Thus, though the weight of one Bisá is 180 *tolás* in Puri and Ganjam, it may be in some places equivalent to 120 *tolás* or 144 *tolás* of ordinary weight, or even to 108 *tolás*. In each of which cases the scale on the *Bisá* dángá would be differently cross-marked to indicate the main subdivisions of *Bisá*.

As mentioned before, the scale in these two beams described above consists of 17 ring-marks with sixth, eleventh, thirteenth and sixteenth rings from the left end, marked with cross signs on the upper side of the beam. The following list shows the value of the weight of the article on the pan corresponding to each ring in the scale at which the sliding suspensor would make the beam perfectly horizontal. The rings of the scale are numbered with reference to the broad end of the beam in this list.

1st Ring mark ..	indicates the weight of the pan only, and thus it is equivalent to zero.	
2nd ,, ,, ..	equivalent to one	*pala* = 6 *tolás*.
3rd ,, ,, ..	,,	two *palas* = 12 tolás.
4th ,, ,, ..	,,	three *palas* = 18 tolás.
5th ,, ,, ..	,,	four *palas* = 24 tolás.
6th (First cross mark)	,,	five palas = one-sixth *Bisá* = 30 *tolás*.
7th Ring mark ..	,,	six *palas* = 36 *tolás*.
8th ,, ,, ..	,,	seven *palas* = 42 *tolás*.
9th ,, ,, ..	,,	eight *palas* = 48 *tolás*.
10th ,, ,, ..	,,	nine *palas* = 54 *tolás*.
11th (Second cross mark)	,,	ten *palas* = one-third *Bisá* = 60 *tolás*.
12th Ring mark ..	,,	twelve *palas* = 72 *tolás*.
13th (Third cross mark)	,,	fifteen *palas* = half *Bisá* = 90 *tolás*.
14th Ring mark ..	,,	eighteen *palas* = 108 *tolás*.
15th ,, ,, ..	,,	twenty *palas* = 120 *tolás*.
16th (Fourth cross mark)	,,	twenty-five *palas* = five-sixth of a *Bisá* = 150 *tolás*.
17th Ring mark ..	,,	thirty *palas* = one *Bisá* = 180 *tolás*.

Dr Annandale described and figured two other beams which were already in the collection of the Museum along with the description of the weighing beam which he himself

collected from Madura : one iron beam from Punjab, and the other a well-turned wooden one from Dacca. There exist two more of such beams in the collection, one from Chūtia Nagpur and the other labelled "India." The only clue about this latter beam is the name "*taraju*" in the register under which it is entered. *Taraju* means in *Uria* a scale beam with equal arms. Thus though the specimen is evidently entered under a wrong name, it probably indicates the country from which it was obtained.

The Chūtia Nagpur beam is the most primitive one in the whole collection ; unfortunately there is no record to show the name of the District from which it was obtained, nor of the race of people among whom it was seen used. The name "*tula*" on the label may indicate the local name, the word being evidently derived from the Sankrit word *tul* = scale beams or measure. The total length of this beam is slightly over a foot—only 31 cm. in all : it is made of a heavy wood probably *Sál.* The whole beam is divided sharply into two portions—a round broad portion of 17 cm. in length with 3 cm. to 3·5 cm. in diameter, and a narrow round portion of 14 cm. in length of varying diameter from 2 cm. to 1 cm. to the narrow end. The whole beam is very roughly rounded and the scale of six deep grooves is roughly cut on the top side in the narrow portion of the beam—the last groove towards free narrow end being a complete ring-mark round the beam. Near the free end of the narrow limb of the beam is a hole through which a pan is suspended. The pan in this case is a thin and flat oblong piece of very light wood measuring about 21·5 cm. by 12·5 cm. and suspended from the hole near the free end of the narrow portion of the beam by two pieces of string passed through four holes at the four corners of the rough oblong piece of the wooden pan. By actual weighing the values of the markings of the scale have been ascertained with reference to standard *tolás*, but what was the original unit with reference to the inscribed scale it is impossible to say. In the following list the cut grooves are numbered with reference to the broad portion of the beam, i.e. the nearest groove to the broad portion is termed first and one next to it as second, and so on.

First cut groove	..	Zero—stands for the weight of the pan.
Second ,,	..	Two *tolás* of standard weight.
Third ,,	..	Four ,, ,, ,, ,,
Fourth ,,	..	Six ,, ,, ,, ,,
Fifth ,,	..	Eight ,, ,, ,, ,,
Sixth ,,	..	Twelve ,, ,, ,, ,,

It is interesting to note that the Dacca beam figured and described by Dr. Annandale in the Memoirs above referred to resembles closely the Chūtia Nagpur beam in the marking of the

scale and the length of the beam. The Dacca beam, however, is of superior workmanship, being well turned in a lathe and the broad left portion is somewhat spindle-shaped in broad end, though the beam as a whole is tapering and not sharply divided into a narrow portion and a broad portion like the Chūtia Nagpur "*tula.*"

The beam marked "India" referred to before resembles the Chūtia Nagpur "tula" and the Dacca beam in being one of the shorter variety—only 29·5 cm. in length. It resembles the Dacca one in being of better workmanship and well turned in the lathe, but is more like the "tula" in being divided into two distinct portions: a left broader portion and a right narrower portion, and the narrow portion contains the scale. In all these characters this beam resembles the Chūtia Nagpur "tula" very closely. The broad portion of the beam however is shaped to a form of spindle—the transverse diameter of which is 4 cm. The narrow portion terminates in an enlarged knob through which the hole for the pan passes. The transverse diameter of the narrow portion is 1·5 cm. This beam in every turn betrays attempts at fine workmanship and ornamentation and is beautifully turned in a lathe. The scale consists of eight principal divisions or thin grooves on the top side only, the second interval between the second and the third grooves from the broad end appears to be subdivided by four smaller cuts or marks representing minor subdivisions. Assuming the first mark in the scale to represent the weight of the scale (there is no pan attached to this beam), the second mark weighs about 5½ or 6 tolás, third mark 16 tolás, fourth mark 36 tolás, and so on. The subdivisions between the 2nd and 3rd divisions appear to indicate the weight of 2 *tolás* each, which reminds one of the value of each division of Chūtia Nagpur "tula" described before.

The shape, the scale and the ornamentations of this beam all point to a more advanced state of society than the Chūtia Nagpur "tula" and the Dacca weighing beam. These three represent the shorter variety, whereas the Madura beam and two Rambha beams represent the long and tapering variety of this kind of weighing beams.

It would be also interesting to ascertain the real meaning of the word *Bisá.* It may have been derived from *Binsa* or *Bis* (meaning twenty) in consideration of the fact that in parts of Orissa twenty *palas* go to make one *Bisá*, and that everywhere the value of one *pala* is the same, i.e. six *tolás.* Against this supposition, however, there remains the fact that in ordinary *Uria* enumeration the word *kuri* is everywhere used for twenty and not *Binsa* or *Bis*—which would lead one to think that *Bisá* may not have any reference to the number twenty. Whether the word *Bisá* has any connection with the Scandinavian word *Bismer*, which is borne by the beam it

resembles so much in shape and character, I have no means of ascertaining.

As already noticed, fish, vegetables, turmeric, etc. are sold in retail under *Bisá* system and weighed by the *Bisá dángá* by the villagers. The rest of the articles, such as rice, paddy, sugar, ghee, milk, flour are all retailed by *map* or measure by means of a set of measures ordinarily made of hollow bamboo pieces closed in one end. The unit measure in this system is termed *Addhá* or *Oddá*. The mahajans in their wholesale dealings use an *Addhá* made of iron. This iron *máp* has been standardized under Government authority and is sold at Re. 1-1 each from the factories. The standard equivalent weight is 88 *tolás*. But the *Addhá* used by the villagers and also for the retail purposes are quite different. For measuring ghee, milk, rice, etc., the measure *Addhá* used is termed *Siká Addhá*, which is in standard measure equivalent to 74 *tolás*. But to measure paddy, oil, sugar etc., for retail purposes the unit employed is termed *Bikká* (or *Pulushá*) *Addhá* of 64 *tolás* of standard *tolá* weight. These are also made out of hollow bamboo pieces. There are measures representing multiples as well as subdivisions of *Addhá*. In the following list those names that are still in use in Rambha and Balugaon have been mentioned.

MULTIPLES OF *Addhá*.

4 Addhás = 1 tumbá—generally made of wood.
4 tumbá = 1 Naūti--generally an earthen pot, also of brass.
20 Nauti = 1 Bharan.
3 Bharan = 1 Gadi = one cart load.

SUBDIVISIONS OF *Addhá*.

(*Represented by measures exhibited.*)

2 Pe = 1 Paw.
2 Paws = 1 *Addhá* Sola.
2 Solas = 1 Buda or Bora.
2 Boras = *Addhá* = 64 tolás or 63 tolas.

The measures representing *Addhá* and its subdivisions as current among the villagers in Rambha are exhibited.

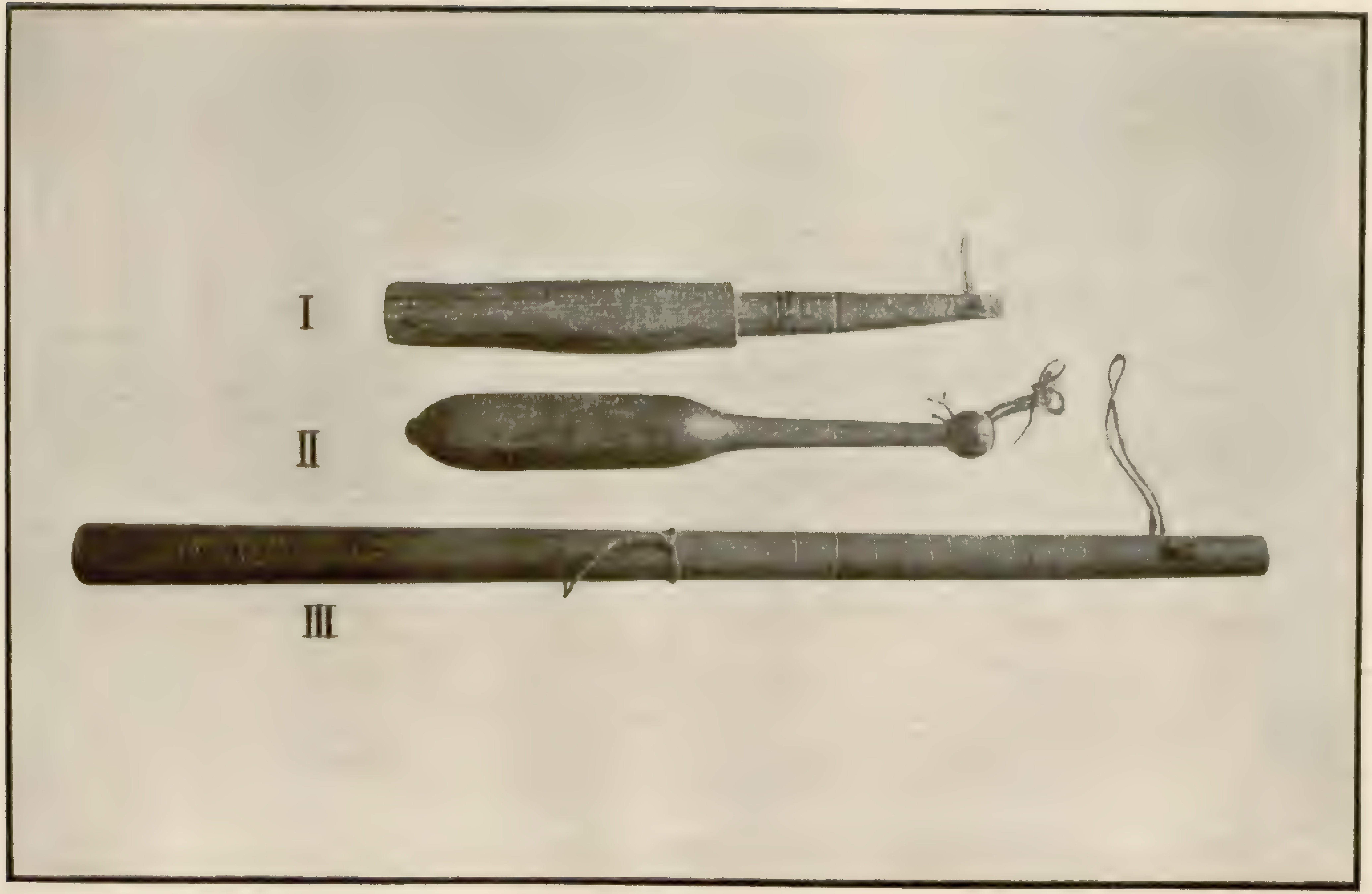
The weights and measures of Orissa are very complicated. A close and careful study of them would be sure to lead to important results, as complications are generally due to introduction of different systems at different periods in the history of the race. Whether the name *Addhá* has any connection with the word *Oddrá*—the name for the original settlers of the country from whom the name of the Province of *Orissa* is said to have been derived—should also be considered.

EXPLANATION OF PLATE.

Fig. I.—Weighing-beam labelled "*tulá*" from Chūtiá Nagpur.

Fig. II.—Weighing-beam labelled "India" without specific locality, entered in the register (Ind Mus.) under the name "*Taraju.*"

Fig. III.—Weighing-beam from Rambha (Ganjam) locally called *Bisá dángá.*



WEIGHING-BEAMS OF ORISSA.

4. A note on the Badkamta Narttesvara Image Inscription.

By Nalini Kanta Bhattasali, M.A.,
Curator, Dacca Museum.

[With Plate X.]

In March 1914 number of the *J.A.S.B.*, pp. 88 and 89, I gave a reading of this inscription. The reading was rather defective as I could not read some of the letters rendered very indistinct by the peeling off of stone. The name of the donor was also read incorrectly as Bharudeva whereas it ought to have been read Bhabu Deva. I give a fresh reading of the inscription below.

(1) S'rīmallayahacandra deva padī । ya vijaya rājye Astā । . . . . . . shna Caturdaśyām Tithau Bṛhaspati vāre Puṣyā Nakṣatre । Karmmānta pāla S'rī

(2) Kusumadeva suta S'rī Bhabudeva । karita S'rī Narttesvara Bhaṭṭā . . . . Chandra gatyā Āṣāḍha dine 14 ॥ Khanitañca Ratokena sarvakṣaraḥ.

(3) Khanitañca madhusūdaneneti ॥

The most important addition is that of the word चन्द्रगत्या before आषाढ़ दिने १४. I pointed out in my paper on "A forgotten kingdom of East Bengal" in which this inscription was published that the date of the inscription was a curious anomaly,—several scholars declaring the coincidence of कृष्णचतुर्द्दशी तिथि, पुष्यानक्षत्र, बृहस्पति वार and the 14th day of आषाढ़, impossible. We find now from the word चन्द्रगत्या that the calculation is to be made by the movement of the moon. Astronomers who are fond of a puzzle may see now whether the calculation made according to the movement of the moon makes the coincidence possible and yields a date.

I tried to prove in my paper that the country round modern Comilla was anciently known as Samataṭa. An inscription of king Mahipāla deva discovered by Babu Upendrachandra Guha, B.A., B.T., at a place called Baghaura in the Comilla district seems to confirm my identification. The inscription is on the pedestal of an image of Vishnu and runs as follows:—

(१म) ॐ सम्बत् ३ माघदिने २७ श्रीमहीपालदेव राज्ये

(२य) कीर्त्तिरियं नारायणभट्ट(ा)रकाख्या समतटे बिलकिन्द

(३य) कीय परमवैष्णवस्य वणिक्लोकदत्तस्य वसुदत्तसुत

(४र्थ) स्य माता पित्रोरात्मनश्च पुण्ययशो अभिवृद्धये ॥

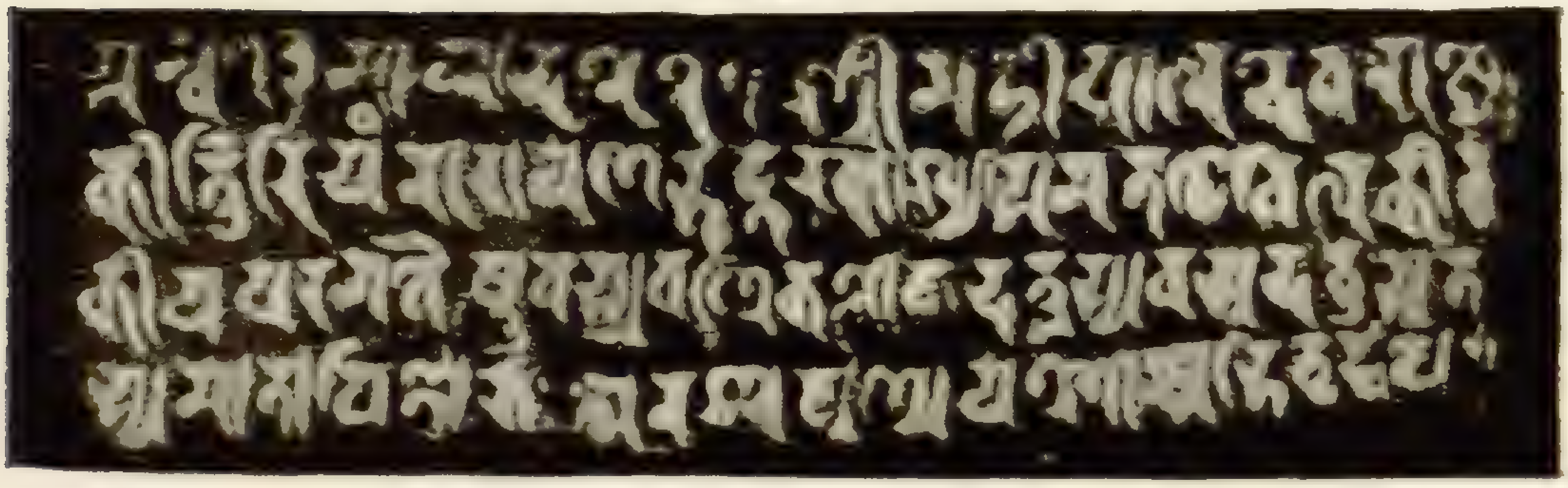
Translation.

Om! The year three, the 27th day of Magha. In Samatata, in the kingdom of Sri Mahipala Deva, this meritorious deed namely (the installation of) the Lord Nārāyaṇa is by the merchant Lokadatta belonging to (the village of) Bilakinda,—a great worshipper of Vishnu,—son of Vasudatta,—for the special furtherance of the spiritual merit and fame of himself and parents.

The historical importance of this inscription as furnishing fresh light on the obscure history of Vigrahapāla II and Mahipala I has been pointed out by me in the June 1914 number of the *Dacca Review.* The Bangaḍ plate of Mahipala I and the Dinajpur Rajbati Inscription inform us that some usurpers drove Vigrahapala from the throne and he, after losing his kingdom, took shelter in the eastern country where water abounds. (देशे प्राच्यौ प्रचुर पयसि.) His heroic son Mahipala recovered the lost kingdom of his father. The new Baghaura image inscription shows that Samataṭa was the eastern country where Vigrahapala took shelter, and Samatata, which was under Mahipala even so early as the third year of his reign, was in all probability the place where Mahipāla I was crowned, and which was used by him as the base of operations in his fight with the usurper in the recovery of his father's kingdom.

The place Bilakinda to which the merchant Lokadatta belonged may be identified with the village of Bilkenduī (विलकेन्दुयाइ) which lies close to Baghaura, the place where the inscribed image was found.

The Bāghāura Inscribed Image of Vishnu.



The Bāghāura Vishnu Image Inscription of the 3rd Year of Mahipāla I.

5. Observations on the Defoliation of some Madras Trees.

By M. O. PARTHASARATHY IYENGAR, M.A., L.T., *Lecturer in Natural Science, Teachers' College, Saidapet.*

[Read at the second Indian Science Congress, Madras, January 1915.]

The defoliation of the trees of Madras presents some interesting features which are generally not met with in the tropical monsoon forest regions and which have not yet been sufficiently well investigated. At the beginning of February or earlier, as the temperature rises, most of the trees shed their leaves completely, and soon after, sometimes even simultaneously with the shedding, new leaves make their appearance all over the trees. Some trees shed their leaves earlier, during the monsoon season, but even those trees clothe themselves with new leaves sooner or later. Before proceeding any further, I have to state that owing to the shortness of the time available I have not included in this paper the details concerning the behaviour of the several trees; I have only given the inferences that I have drawn from a consideration of the details. Leaf-fall is generally considered as being induced by physiological or physical drought, and generally occurs prior to a long period of leaflessness, in which condition the trees tide over the season of drought, winter in the case of the trees of the temperate regions, and the long dry summer in the case of those of the tropical monsoon forest regions. But with the trees of Madras the shedding does not take place prior to a period of leaflessness for tiding over the drought period, but it takes place prior to a production of fresh leaves all over the tree. They do not rest in a leafless condition during the period of drought, but, on the contrary, face the unfavourable season with quite green fresh foliage. What can the meaning be of this behaviour? The possible explanation seems to be this. The trees do not suffer from a failure of water-supply, as is indicated by the output of fresh leaves in such profusion so soon after the shedding of the old ones. When its water-supply does not fail, there is no reason why the trees should spend the summer in a leafless condition. The old leaves may not be able to carry on their work quite efficiently during the hot summer and so are quickly replaced by vigorous young ones which should certainly be able to cope more effectively with the unfavourable season. New eaves are better than old ones for the following reasons:—

(1) The cuticle of the old leaves are not so impermeable to water as that of young leaves.[1]

(2) Younger stomata possess greater functional activity than old ones.[2] Coulter, Barnes and Cowles [3] say, "old leaves sometimes lose their water more rapidly than do young ones, because the stomatal mechanism becomes less perfect with increasing age."

(3) "Perhaps leaf activity gradually becomes impaired through continued accumulation of excreta and the increased clogging of the stomata by dust."[4]

(4) Apart from other considerations, age by itself may lower the general vitality of the leaf.

I therefore consider this rapid replacement of the old leaves by the fresh ones an excellent adaptation on the part of the trees for carrying on the leaf-functions with undiminished vigour during the trying hot season, in just the same way as the leafless condition of the trees of the temperate regions during winter and of the tropical monsoon forests during summer may be considered as an adaptation against the excessive harmful transpiration during the period of drought.

Now, what are the immediate causes of leaf-fall in this instance?

Leaf-fall is considered to be induced mainly by a failure of water supply. But the Madras trees by their behaviour show that they do not suffer from such a failure. And yet the leaves are shed. Why? It is quite probable that at this time the accumulation of the waste products in the leaf gets beyond the maximum limits of toleration by the leaves,[5] which are therefore shed. This probably explains why even trees close to ponds and other sources of good water supply shed their leaves during the hot season. Another cause too may be working at the same time. The resting buds may be stimulated into activity by the rising heat at the commencement of the hot season. Becoming active, they begin to develop and grow and draw the sap-current to themselves, so that the usual supply to the old leaves is cut off. The old leaves, thus suffering from physiological drought, rapidly form abscision layers and fall off. Schimper [6] in another connection says: "It suggests that .... the swelling buds draw the transpiration current to themselves."

Jost says: "correlation between the fully developed leaves and the rudiments of the next year's growth prevents an

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1 Bergen, Bot. Gaz., Vol. 38, 1904. 2 Bergen, *ib.*

3 Text-book of Botany, p. 567.

4 Coulter, Barnes and Cowles, Text-book of Botany.

5 Coulter, Barnes and Cowles, in their Text-book of Botany, p. 354. say: "In the leaves of woody plants . . . . there is with age, as a rule, a steady accumulation of dry matter and a rising proportion of ash."

6 Plant Geography. Eng. Trans., page 245.

immediate evolution of the latter. In this case a mere retardation of functional activity and not complete removal is all that is necessary to induce the correlation to make itself apparent.'' Two factors therefore may be operative in bringing about the leaf-fall. The diminished activity of the excreta-laden old leaves may induce the resting buds to develop. The developing buds, becoming active, draw the sap current away from the old leaves, which consequently are shed. Sometimes an increased water-supply may induce the resting buds to develop in spite of the inhibitory effect of the functional old leaves. In that case the increased water-supply is sufficient for both the old leaves and the developing buds; and moreover, probably, the leaves on the tree being not too old yet, but quite active and healthy, and less laden with excreta, are able to hold their own. This is quite well seen during the monsoon season, when the light-coloured new flushes make their appearance amidst the dark-green old leaves all over the tree.

Leaf-fall may take place even during the rainy season. When there is continuous heavy rain for a number of days together, *Ficus religiosa* sheds its leaves totally, though it usually sheds its leaves during the dry season. With reference to such behaviour of trees Coulter, Barnes and Cowles [1] say: "Leaf-fall may result also from protracted wet weather....... Possibly the reduction of transpiration, if accompanied by strong turgor pressure, may result here in the injection of air-spaces and hence in impaired gas exchange and death.'' *Melia Azadirachta*, which usually sheds its leaves during the dry season, is partially affected by the rains like the *Peepul.* All its lower leaves are shed during the rains, though the upper leaves remain unaffected. The upper leaves escape the effects of the rains, because they are farther from the roots and so get less water-supply; and being more exposed to the action of the wind, which increases in velocity with the height from the ground level, are able to evaporate a good portion of the excess of water and so escape the water injection of air-spaces and the consequent shedding.

Again, the trees which normally shed their leaves during the monsoon season are probably similarly affected, for their shedding extends from below upwards, e.g. *Pongamia glabra* and *Crataeva religiosa.* The lowest portions are the first to shed, because they are the least exposed and are nearest to the roots and consequently get most of the water-supply. The trees which shed their leaves during the dry season do so from the top downwards. Here the cause of the leaf-fall is probably physiological drought. When all the developing buds demand water, the first part of the tree to experience a shortage of

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1 Text-book of Botany.

water-supply should naturally be the part farthest from the roots, viz. the top; and hence it is that the leaves are shed from the top downwards. Moreover the topmost leaves, being more exposed to the action of the wind than the lower portion, attain their maximum excreta-contents earlier than the lower leaves, and so are the earlier ones to be shed.

A considerable amount of variation occurs as regards the time of shedding and the time intervening between the shedding of the old leaves and the growth of the new ones. In some trees the new leaves come out simultaneously with the shedding of the old ones; in some others a few days of leaflessness intervene between the shedding and the growth of the new leaves; in some others again this period is longer and in one group of trees, which I shall call the *Odina group*, this period is very long and may extend to even four months, e.g. *Crataeva religiosa*. I cannot adequately deal with the many details concerning all these in this short paper, but shall say a few words about the *Odina group*, which consists of the following trees :—

(1) *Odina Wodier.*
(2) *Crataeva religiosa.*
(3) *Eriodendron anfractuosum.*
(4) *Bombax malabaricum.*
(5) *Erythrina indica.*
(6) *Spondias mangifera.*
(7) *Adansonia digitata.*
(8) *Gyrocarpus Jacquini.*
(9) *Plumeria acutifolia.*
(10) *Manihot Glaziovii.*

These trees rest for a very long time. During the leafless condition they produce flowers profusely and even in some cases ripen their fruits. And when their reproductive activity is over, they produce new leaves all over the tree. The cause of their behaviour is not very clear. Their behaviour is probably a repetition of their behaviour in their homes, where such an action may be adaptive to the prevailing conditions. For instance, *Adansonia digitata* is a native of the African savanna. It stores up water in its huge trunk and safely tides over the rigours of the hot season in a leafless condition. *Bombax malabaricum* is a native of the deciduous forests of the Western Ghats.

Most of the trees of the *Odina group* possess the following characteristics. They possess either a soft wood or fleshy twigs or both, where considerable quantities of food and water can be stored. Their bark is generally smooth and greenish (except in Bombax), so that a certain amount of carbo-hydrate snythesis can be carried on during the long period, when the trees are leafless. This greenishness of bark is most prominently seen in *Eriodendron anfractuosum*. *Manihot Glaziovii* possesses, in addition to this, a large swollen root, portions in which it can store food and water.

As already mentioned, this group of trees flowers while the trees are in a leafless condition. Schimper thinks that the

shedding of leaves in some cases is an indication that they are going to flower shortly, e.g. *Erythrina indica* and *Eriodendron anfractuosum.* This flowering in a leafless condition is quite significant biologically, since the leafless trees in full blossom are very conspicuous even at a great distance and thus are able to attract its insect or bird visitors. For instance *Erythrina indica, Poinciana regia*, *Bombax malabaricum*, *Butea frondosa*, *Crataeva religiosa*, and *Cassia Fistula*, which generally blossom in a leafless condition, are easily seen and even distinguished at considerable distances. Schimper says that there is a sort of antagonism between flowers and leaves, that leaves are not formed where flowers are formed. This is especially seen in this *Odina group.* The upper branches are full of flowers, while a few may sometimes be formed on the lower branches. Again when new leaves are formed later on, after the reproductive activities are over, they are first on the lower branches and the leaf formation gradually extends upwards. This can be explained in the following way. A diminution of water-supply favours flower production and an increased supply, leaf production. The lower portion of the tree gets a larger supply of water than the top portion. Therefore the flowers are formed on the top and the leaves at the bottom.

But this antagonism between flower and leaf production is not observable in the majority of the other Madras trees. They generally form flowers very soon after producing the new leaves all over, e.g. *Pongamia*, *Enterolobium Saman*, etc. Here the same twig will have a number of new leaves at the bottom and flowers at the top. Sometimes flowers are formed before the shedding of the old leaves, e.g. *Mangifera indica*, *Spathodea campanulata.* Sometimes the flowers make their appearance only during the monsoon season, e.g. *Millingtonia hortensis*, *Calophyllum inophyllum*, etc.

I shall now consider a few special cases:—

(1) *Thespesia populnea* is practically an evergreen. Its old leaves keep falling throughout the year and new ones keep coming out at the same time. The maximum leaf-fall, however, occurs during the rainy season; on the other hand, *Thespesia* trees near the Salt marsh at Adyar shed their leaves totally during the dry season.

(2) The case of *Ficus nitida* is rather interesting. The witches' brooms, which generally occur on the tree and the normal branches, shed their leaves at different times, the witches' brooms shedding their leaves earlier than the normal branches; but they soon afterwards reclothe themselves with new leaves. And later on, when the normal leaves are shed, the tree is quite bare but for the leafy clumps of witches' brooms all over the tree. The witches' brooms being parasitized portions of the tree exhibit an increased feverish activity. Being more active than the normal leaves of the tree, they shed their old leaves and

produce new ones earlier than the normal portions of the tree.

In all the cases discussed above it is not known what part the internal factors, especially factors connected with nutrition, play in bringing about the leaf-fall and production of new leaves. J. B. Farmer says[1]: "Although various functions connected with nutrition are concerned in bringing about the formation of the separation layer, the most powerful stimulus is unquestionably that of physiological water starvation, whether this starvation results from physical starvation or physiological inability to absorb."

In the tropical monsoon forest, the dry season is passed in a leafless condition The Madras region, though still influenced by the monsoon rains, differs in its behaviour in passing the dry season mostly in a leafy condition. I would, therefore, call the former the "*resting monsoon forest region*" and the latter the "*non-resting monsoon forest region.*" But when in Madras the supply of rain is less than the average, as it happened in the year 1911 (total rainfall for that year being 38·31 inches, while the average annual fall was 51·36 inches), there is a tendency on the part of the trees to rest longer than usual after shedding the leaves. Again when the rainfall is greater than usual, as it happened last year and the year before last, the resting period becomes shorter than usual. In this case the replacement of the old leaves by new ones occurs earlier in the season. For instance, *Ficus bengalensis*, which usually sheds its leaves in February or March or even later, began shedding its leaves totally during December 1914.

There is yet another kind of defoliation seen in Madras. That is among the trees near the seashore. During the north-east monsoon season there blows a constant chilly wind laden with moisture and minute particles of salt. This has the effect of killing the tips of the twigs and the leaves on the side exposed to it. The defoliation in this case advances from the exposed to the unexposed side. That the shedding of the leaves is due to the action of this wind is seen from the fact that trees which are protected from its action by some wind-break, though standing in the same region, are not affected. This can be well seen in the *Thespesia* trees planted on the northern and southern sides of the Marine Aquarium. The trees on the northern side are quite bare, while the southern ones are covered with leaves.

Again, some trees would appear to stand the action of the sea-breeze better than others. The following trees are very easily affected by the sea-breeze :—

Poinciana regia, *Enterolobium Saman*, *Sapindus trifoliatus*,

[1] Plant-life. Home. Univ. Libr., p. 136.

Morinda tinctoria, Thespesia populnea, Melia Azadirachta, Erythrina indica, Tamarindus indica, Odina Wodier.

The following trees appear to withstand the effect of the breeze better:—

Calophyllum inophyllum, Plumeria alba, Bignonia megapotanica.

The trees begin to put forth new leaves towards the end of December or the beginning of January, when the force of the sea-breeze abates and the temperature begins to rise.

Summary.

(1) The trees *spend the dry season in a leafy condition,* unlike cold country trees in winter and monsoon forest trees in summer. This is an adaptation to carry on the leaf functions with undiminished vigour with the help of fresh leaves produced after shedding the old ones, because young leaves do better work than old ones.

(2) The old leaves are shed, because the new buds open out, and, as a result of correlation, draw away the sap current from the old leaves. The accumulation of excreta may also be a cause of the shedding of old leaves.

(3) Considerable variation is seen in respect to the interval between the shedding of the old leaves and the growth of the new ones.

(4) Leaves may also be shed owing to continued wet weather, as for instance in *Ficus religiosa, Melia Azadirachta.*

(5) Some trees shed their leaves in the cold season, but most of the trees do so in the dry season. The former shed their leaves from the bottom upwards, while the latter from the top downwards.

(6) The *Odina* group of trees possess special arrangements to enable them to remain leafless for a long time, viz. soft wood, fleshy twigs and a smooth green bark.

(7) *Ficus nitida* shows that increased activity of the buds may have something to do with the leaf-fall and formation of new leaves. The witches' brooms are quite full of new leaves when the tree itself is quite bare.

(8) Owing to the action of the sea breeze the trees along the shore shed their leaves on the side exposed to the breeze. Trees standing in the same region but protected by some wind break are not affected by the breeze. Again some trees can withstand the action of the sea breeze better than others.

(9) *Thespesia populnea*, unlike other trees, never sheds its leaves at a definite period of time. It is practically evergreen. But near the salt marsh at Adyar it sheds its leaves during summer.

6. Note on the Flora of the South Indian Highlands.

By P. F. Fyson, B.A., F.L.S.

[Read at the meeting of the Indian Science Congress, 1915.]

The Nilgiri and Pulney Hills form the southernmost extensions of the Western Ghats and run up in each case to 8000 ft. Up to 6000 ft. the sides are very steep and covered with dense tropical and subtropical vegetation; but at 6,500 ft. is reached a plateau of rolling grass downs with streams and small woods, where the vegetation has affinities rather with those of temperate zones and tropical highlands. The two areas are completely separated by a stretch of lowland, at 1500 ft., 100 miles wide, but narrowed by the Anamalai Hills to the Palghat gap. From the North the Nilgiris are cut off by a sinking of the Ghats to 3000 ft. in Mysore, and to the south the Pulneys and the connected Travancore ranges extend at a height of 6000 ft. for some 30 or 40 miles only and are nowhere more than 150 miles from the sea.

Of the 430 indigenous phanerogamic species collected on these plateaus (above 6500 ft.), 43 or 10% occur on the Nilgiris, but were not found on the Pulneys; and 29 or 6·3% on the Pulneys, but not on the Nilgiris. No fewer than 28% are confined to South India and another 17% is shared with Ceylon, so that 45% are endemic to South India and Ceylon. With the Khasi Hills there are 17% in common, with Temperate Himalaya 12%, and with Japan and China 9%. The narrowness of the distribution of the phanerogamic flora as a whole is remarkable.

The final identification of the plants was done at Kew during the writer's furlough, and as far as possible they were compared with the actual type specimens. It was surprising to find how necessary this was, though the plants had been already identified in the Madras Herbarium through the courtesy of Dr. Barber and Mr. Rangarchariar who are in charge of it. No fewer than 22 or 5% had to be re-named (in addition to the new species), mostly by elevation of species previously reduced in the *Flora of British India*. Thus *Hypericum Wightianum*, Wall., had been reduced to *H. nepalense*, Choisy, but is quite distinct in having a one-celled ovary with the three parietal placentas, while in the latter there are three cells. *Jasminum bignoniaceum*, Wall., had again been reduced to *J. humile*, a plant of uncertain origin, but obtained in the first instance, as recorded, from Spain or Italy. The original

specimen of Linnaeus was not available for comparison, but a study of the decription and of the figures by Aitken and others showed that the South Indian plant is not the same, differing entirely in the shape of the corolla and in the possession of several, not three, leaflets. An interesting find was that two species of Dicrocephala—*D. latifolia* DC. and *D. chrysanthemifolia* DC.—were one and the same, the characters of the one being found on the upper and of the other on the lower branches of the same plant. The chief find of this nature was perhaps in connection with the well-known Indian plant called *Crotalaria rubiginosa*, Willd. In the *Flora of British India* and in all subsequent local Floras the plant has been given this name, because, one must suppose, it appeared to agree with a description, by Willdenow, of a plant which was said to have been collected in the East Indies. In the *F.B.I.* two other species, *C. scabrella*, W. and A., and *C. Wightiana*, Graham, are united with it. Both these have been separated again by later workers, notably by Sir D. Prain, the former Director of the Botanical Survey. As I had three distinct forms, I sent them to Berlin for comparison with Willdenow's type specimen. Dr. Harms, who very kindly himself examined the plants, found, as he expressed it, to his great surprise, that none of them was Willdenow's species, nor was it identical with either *C. scabrella* or *C. Wightiana*, but that Willdenow's plant is identical with *C. sagittalis* L., a North American species. The Indian plant, so long known as *C. rubiginosa*, Willd., must therefore be given another name, and in Wallich's herbarium at Kew was found a specimen named *C. ovalifolia*. The entirely new species decribed number 10, of which four are in Eriocaulon, three in Crotalaria, one each in Lasianthus, Anaphalis, and Olea. These have appeared in the pages of the Kew Bulletin. A detailed descriptive FLORA with many illustrations, will, it is hoped, be published this year.

JANUARY, 1915.

The Monthly General Meeting of the Society was held on Wednesday, the 6th January 1915, at 9-15 P.M.

LIEUT.-COL. SIR LEONARD ROGERS, KT., C.I.E., M.D., B.S., F.R.C.P., F.R.C.S., F.A.S.B., I.M.S., Vice-President, in the chair.

The following members were present:—

Maulavi Abdul Wali, Dr. N. Annandale. Mr. H. G. Graves, Mr. F. H. Gravely, Major E. D. W. Greig, Dr. E. P. Harrison, Dr. W. C. Hossack, Mr. H. C. Jones, Mr. S. W. Kemp, Hon'ble Mr. W. A. Lee, Mr. C. S. Middlemiss, Dr. G. E. Pilgrim, Dr. Satis Chandra Vidyabhusana.

Visitors:—Mr. H. G. Carter, Mrs. H. G. Carter, Miss Cleghorn, Miss Cooper, Mr. S. W. Kemp, Mr. K. F. Watkinson and another.

The minutes of the last meeting were read and confirmed.

Thirty-three presentations were announced.

The General Secretary reported that Dr. Josef Horovitz and Dr. John E. Panioty had expressed a desire to withdraw from the Society.

The General Secretary reported the death of Shams-ul-Ulama Maulvi Ahmud, Shams-ul-Ulama Maulvi Shibli Nomani, and Dr. P. Cordier, ordinary members of the Society.

The Chairman announced that Dr. Abdullah al-Mamun Suhrawardy had been appointed Philological Secretary in the place of Major C. L. Peart, resigned.

The following gentlemen were balloted for as Ordinary Members:—

Mr. Richard H. Whitehouse, Professor of Biology, Agra College, Agra, proposed by Mr. F. H. Gravely, seconded by Mr. S. W. Kemp; *Babu Prokash Chandra Mitra*, Engineer and Contractor, 101-1, Clive Street, Calcutta, proposed by Babu R. D. Banerji, seconded by Mr. F. H. Gravely; *Mr. Humphrey G. Carter*, Economic Botanist to Botanical Survey, Indian Museum, proposed by Dr. N. Annandale, seconded by Mr. F. H. Gravely; *Mr. Q. Fazl-i-Haqq*, M.A., Professor of Persian Literature, Government College, Lahore, proposed by Maulvi M. Hidayet Husain, seconded by Babu Nilmani Chakravarti;

Babu Narendra Nath Ray, B.A., LL.B., Pleader, Judge's Court, Benares, proposed by Mahamahopadhyaya Haraprasad Shastri, seconded by Dr. Satis Chandra Vidyabhusana.

Dr. G. E. Pilgrim exhibited a fossil jaw, possessing ancestral human characters, from the Miocene of the Punjab.

The jaw was represented by five fragments which he considered to belong to the same species of Anthropoid to which the name of *Sivapithecus indicus* had been given. Three of these were found at Chinji in the Salt Range of the Punjab and two at Haritalyangar, Belaspur State, Simla Hills. He briefly detailed the evidence that the Chinji specimens belonged to the Chinji horizon of the Lower Siwaliks and the Haritalyangar specimens to the Nagri horizon of the Middle Siwaliks and were thus in any case of incontrovertibly Miocene age.[1]

He also exhibited a plaster restoration of the jaw, constructed mainly on the evidence of a right ramus from Chinji complete from the alveolus of the canine back to the last molar, and of the front of the left ramus including the symphysis the canine and the roots of pm_4 from Haritalyangar.

He referred to the extreme shortness of the symphysis, the inward position of the canine, the backward shifting of the incisors, and the great divergence of the rami, as essentially human features which had not been found in any other genus than man and could not be said to exist in the same degree either in the Piltdown *Eoanthropus* or in the jaw referred to *Homo heidelbergensis*.

He commented upon the more obvious unhuman features of the jaw, the large canine, the presence of a posterior heel in the canine similar to that in the Gibbon, the excess of length of m_3 over m_1 and m_2, and the absence of a chin, as primitive anthropoid characters which would be expected to occur in any Miocene anthropoid genus whether it was on the human line or not.

The outward curvature of the premolar region was peculiar to the genus *Sivapithecus*, but he suggested that it might have been the first attempt to secure room in the front of the jaw on similar though exaggerated lines to those followed by man's ancestors.

He considered that the lesser degree in which the essential human features, already mentioned, were developed in *Eoanthropus*, pointed to the lines of *Eoanthropus* and *Sivapithecus* having diverged early. As to which of these two genera had the stronger claim to be put on the line leading to *Homo Sapiens*, he thought the time that had elapsed since the early Pleistocene, the date assigned to *Eoanthropus* by its discoverers, hardly sufficient for the jaw to have evolved into that of

[1] *Rec. Geol. Surv. India*, vol. XLIII. pt. 4, pp. 265-326.

Homo sapiens, representatives of which probably existed in the Middle Pleistocene—although *Homo neanderthalensis* may have been connected with *Eoanthropus*, but failed to survive to the present day. On the other hand there was ample time between the Miocene and the Pleistocene for *Sivapithecus* to have eliminated the unhuman features to which he had referred.

He thought it exceedingly improbable that man was descended from the species exhibited, but he suggested that it was quite possible that the hypothetical Miocene human ancestor was some marginal species of the same genus at present unknown, or at all events a closely allied one.

Dr. Pilgrim referred to a paper dealing more fully with the subject, which would shortly be published in the Records of the Geological Survey of India.

Dr. N. Annandale pointed out that the teeth, at any rate, in three of the specimens, were those of very young individuals, being practically unworn. He indicated the importance of this fact in reference to the length of the symphysis. He dwelt on the great size of the first premolar and expressed the opinion that the peculiar curvature of the jaw was correlated with this feature. He did not agree with Dr. Pilgrim's reconstruction of the ascending rami, which he thought far too large. He pointed out that Dr. Pilgrim while dealing with the human and anthropoid characters believed to be exhibited by *Sivapithecus* had not explained the differences between *Sivapithecus* and the lower apes, with which he was personally of the opinion that it had strong affinities.

Dr. Hossack agreed with Dr. Annandale's comment that some of the individual teeth were extraordinarily unworn, in fact they suggested teeth that had just recently been cut, the inference being that the jaw to which they belonged could not have reached its full development. What gave him considerable misgivings was the massive size of the canine and the piece of attached jaw. It was inconceivable that they should come from a jaw that was in any way human in character. He pointed out, that the canine fragment was incomplete and that a considerable amount would have to be added below to complete it, probably $\frac{1}{3}$ of an inch. He pointed out that the re-constructed jaw did not give quite the full height of the fragment, and if the missing portion were added it was quite incapable of containing it. Lastly he pointed out that the canine fragment (left ?) was absolutely symmetrically identical with the canine of the right half of a modern orang-outang's jaw, one of the comparative specimens produced at the meeting. In short he considered that the evidence produced was insufficient to justify the reconstruction of the jaw or the inferences that had been drawn from it.

Dr. Pilgrim, in reply, emphasized the fact that the type of

the genus *Sivapithecus*[1] was the right ramus, from which alone he would have restored the jaw almost exactly as they now saw it. He failed to see how this specimen could be described as belonging to a very young animal, seeing that the full permanent set of teeth was present, of which the last molar had been erupted some months previously to death. He was willing to allow that some change might have taken place in the symphysis, if the animal had lived, but not sufficient to diminish its human character or to vitiate the conclusions that had been drawn from it. He agreed with Dr. Hossack that the casual observer might reasonably suggest that the symphisial fragment belonged to another genus, but on further consideration this seemed to him to be untenable. He might first point out that the canine in the right ramus was shown by its alveolus to have been almost or quite as large as in the other. If an extra ⅓ inch were to be modelled below that fragment, as Dr. Hossack suggested, not only would the resulting jaw be entirely unlike that of the Gorilla or the Orang, but it would possess a slenderness, which was well nigh inconceivable in a jaw of that depth. Such a supposition seemed, therefore, rather far-fetched, when a ramus was provided ready made to fit it as it stood, belonging to an animal that was only slightly smaller. As an argument against a greater depth he mentioned the existence of a foramen near the middle line which might correspond to one in the Orang about half way down the symphysis. If so, then approximately half the depth of the entire jaw must lie above it.

He imagined also that it was the symphysial fragment to which Dr. Annandale referred when he suggested an affinity with the lower monkeys, since the shape of the teeth in the type ramus offered a sufficient distinction. He admitted that the canine was very similar but the short symphysis, the inward position of the canine and the divergence of the rami militated against any close alliance. He thought that the peculiar curvature of the ramus was due to some other cause than the mere size of pm_3, as Dr Annandale had suggested, since in most of the modern apes this tooth was equally large, without any indication of a corresponding curvature in the ramus.

Regarding the ascending ramus, as there was practically nothing to aid in its restoration, he was not prepared to contradict anyone who might wish to restore it differently. The general shape and breadth had been based on that of Neanderthal man, there being equal reason to suppose that the masticatory muscles would be more extensively developed than in modern man.

Finally Dr. Hossack appeared to have misunderstood him

1 New Siwalik Primates and their bearing on the question of the evolution of man and the Anthropidea. *Rec. Geol. Surv. India*, vol. XLV. pt. 1, pp. 1-71 (1915).

when he said that he failed to see how *Sivapithecus* could be in any way human. He (Dr. Pilgrim) did not for a moment claim that it was human. He, for one, never expected that Miocene man would be found, but he thought it inconceivable that the hypothetical Miocene ancestor of man should not have possessed the large canine and all the other primitive features which existed in *Sivapithecus*.

The following papers were read:—

1. *Note on the Floral Mechanism of Tyhonium Trilobatum. By* MAUDE L. CLEGHORN. *Communicated by the* HON'BLE MR. W. A. LEE.

2. *The Evolution and Distribution of Indian Spiders belonging to the subfamily Aricularιinæ. By* F. H. GRAVELY, M.Sc.

Both these papers have been published in the Journal for November 1914.

FEBRUARY, 1915.

The Annual Meeting of the Society was held on Wednesday, the 3rd February, 1915, at 9-15 P.M.

His Excellency the Right Hon'ble THOMAS DAVID BARON CARMICHAEL of SKIRLING, G.C.I.E., K.C.M.G., President, in the chair.

The following members were present :—

Maulavi Abdul Wali, Dr. N. Annandale, Babu Birendra Nath Basu Thakur, Dr. P. J. Bruhl, Babu Monmohan Chakravarti, Babu Nilmani Chakravarti, Babu Amulya Charan Ghosh Vidyabhusana, Mr. F. H. Gravely, Major E. D. W. Greig, I.M.S., Rev. H. Hosten, S.J., Mr. H. C. Jones, Mr. S. W. Kemp, Mr. D. McLean, Babu Ramesh Chandra Majumdar, Mr. R. D. Mehta, C.I.E., Dr. Girindranath Mukerjee, Lieut.-Col. Sir L. Rogers, Kt., Mahamahopadhyaya Haraprasad Shastri, C.I.E., Maulavi M. Kazim Shirazi, Rai Bahadur Lolit Mohan Singha Ray, Dr. A. Suhrawardy, Dr. Satis Chandra Vidyabhusana.

Visitors :—Mr. and Mrs. H. G. Carter, Babu Nilratan Dhar, Babu Saradakanta Ganguly, Mr. A. P. Gray, Mrs. S. W. Kemp, Mr. G. P. Pillai, Mr. V. G. Rogers, Mr. A. Salam, Mr. S. A. Salik, Mr. M. H. Shirazee, Mr. H. Sahrawardy, Mr. M. M. Taghi, Mr. H. W. Young.

The President ordered the distribution of the voting papers for the election of Officers and Members of Council for 1915, and appointed Maharaja Ranjit Singh of Nasirpur and Mr. S. W. Kemp to be scrutineers.

The President also ordered the distribution of the voting papers for the election of Fellows of the Society and appointed Rai Bahadur Lolit Mohan Singh Roy and Mr. S. W. Kemp to be scrutineers.

The President announced that the Trustees of the Elliott Prize for Scientific Search have awarded four prizes for the year 1913 :—

One to *Babu Rasik Lal Datta* for his essay "On chlorine in the nascent state. Chlorination with nitro-hydrochloric acid."

One to *Babu Saradakanta Ganguly* for his essay "On Decimalization of Indian money at sight."

One to *Babu Nagendra Nath Nag* for his essay "On Titanium minerals; their estimation and utilization, with certain exhibits."

One to *Babu Nilratan Dhar* for his essay, " Utersuchungen über Doppelsalze und Komplexsalze. 1. Meetteilung", and " Die Veranderlichkeit und Unbeständigkeit von Kobal tamminen."

The President handed over the Prizes and cash to each of the recipients.

The President also announced that the Barclay Memorial Medal for the year 1915 has been presented to Mr. James Sykes Gamble, C.I.E., M.A., F.R.S.

The Annual Report was then presented.

ANNUAL REPORT FOR 1914.

The Council of the Asiatic Society has the honour to submit the following report on the state of the Society's affairs during the year ending 31st December, 1914.

Member List.

The number of the Ordinary Members at the close of 1914 was 473, against 499 at the close of 1913. Thirty-one Ordinary Members were elected during 1914. Out of these 6 have not yet paid their entrance fees. The number of Ordinary Members added to the list is therefore 25. On the other hand 34 withdrew, 9 died, and 8 were struck off under Rule 40.

The numbers of Ordinary Members in the past six years are as follows :—

YEAR.	PAYING.				NON-PAYING.			GRAND TOTAL.
	Resident.	Non-Resident.	Foreign.	Total.	Life.	Absent.	Total.	
1909	183	217	13	413	20	40	60	473
1910	209	217	16	442	23	43	66	508
1911	200	225	19	444	22	53	75	519
1912	203	229	19	451	23	43	66	517
1913	200	211	19	430	23	46	69	499
1914	191	187	19	398	26	50	75	473

The following members died during the course of the year:—

Shams-ul-Ulama Maulvi Ahmud, Dr. Palmyr Cordier, Mr. Charles W. McMinn, Shams-ul-Ulama Maulana Shibli Nomani, Mr. Henry Campbell Norman, Lieut.-Col. Herbert Wilson Pilgrim, I.M.S., Rai Bahadur Chandra Narayan Singh, Kumar Kamalanand Singh, and Dr. G. Thibaut.

The number of Special Honorary Centenary Members remains unchanged.

We have to lament the deaths of three Honorary Fellows, viz.: Dr. Albert Gunther, Prof. Edward Suess and Dr. Alfred Russell Wallace. The number is now 24.

Among the Associate Members, there has been one death, viz.: Pandit Visnu Prasad Raj Bhandari. In his place the name of Bada Kaji Marichiman Singha has been added to the list. The number now stands at 14.

Three members, Rev. P. O. Bodding, Mons. J. Bacot and H.H. the Hon. Maharaja Sir Rameshwara Singh Bahadur, K.C.I.E., have compounded for their subscriptions during the year.

Fellows of the Society.

As no candidate received a majority of the votes of the Fellows voting, no one was recommended for election as a Fellow during the year. It was resolved on the recommendation of the Fellows that the following addition be made to Rule 2:—"Each Fellow shall be at liberty to nominate one candidate only."

There was one death amongst the Fellows, viz.:—Dr. G. Thibaut. The number now stands at 27.

Office-bearers.

Major C. L. Peart held the post of General Secretary and edited the Proceedings until November, when he resigned and Mr. F. H. Gravely was appointed. Major Peart remained Philological Secretary, edited the Philological Section of the Journal and was in charge of the Arabic and Persian portions of the Bibliotheca Indica, until the middle of December, when he resigned and Dr. A. Al-Ma-mun Suhrawardy was appointed. In January the Council decided to appoint an additional Natural History Secretary to deal with Biology as distinct from Physical Science, and Dr. N. Annandale was appointed Biological Secretary with a seat on the Publication Committee. The Biological Secretary now edits the Biological portion of the Journal. Dr. W. A. K. Christie carried on the duties of Physical Science Secretary, and edited the Physical Science portion of the Journal, until the middle of April, when he left India and Dr. E. P. Harrison was appointed in his place. Mr. J. Coggin Brown remained Anthropological Secretary and edited

the Anthropological portion of the Journal until October, when he resigned and Dr. Annandale was appointed. Dr. P. J. Brühl then took over charge of the duties of Biological Secretary from Dr. Annandale. Dr. Satischandra Vidyabhusana carried on the duties of the Joint Philological Secretary and was in charge of the Sanskrit portion of the Bibliotheca Indica, while Mahamahopadhyaya Haraprasad Shastri continued officer-in-charge of the Bureau of Information and carried on the work of collecting Sanskrit Manuscripts. Major Peart was officer in charge of the Arabic and Persian Search throughout the year. Capt. C. A. Godson continued to be Medical Secretary until August when he left India. Lieut.-Col. Sir L. Rogers and Dr. Hossack carried on the duties in his absence. The coin cabinet was in charge of Mr. H. Nelson Wright, and either he or Mr. C. J. Brown have reported on all Treasure Trove coins sent to the Society. The Council decided in January to appoint an Honorary Librarian, who should be a member of the Council and of the Publication Committee. Mr. Kemp has held this post throughout the year.

Office.

The Lama who is looking after the Tibetan collections belonging to the Society is still engaged on the Tibetan Catalogue. He has been appointed for another two years on his present pay.

Babu Nritya Gopal Basu, late cashier of the Society, who was drawing a pension of Rs. 20 a month, died in July 1914.

There have been no other changes in the establishment.

Mr. J. H. Elliott has continued as Assistant Secretary, and Babu Balai Lal Dutt, B.A., as the First Library Assistant, throughout the year.

Society's Premises and Property.

The building of the new premises for the Society has not yet been taken in hand. On a reference to the Corporation of Calcutta the Society was informed that the Corporation has abandoned the scheme of widening Park Street and that it was to be undertaken by the Calcutta Improvement Trust. The matter is before the Trust, and it is feared that at least one year must elapse before the Society receives compensation for the land which will be acquired.

Mr. H. Beveridge has presented us with a copy of his portrait. It has been framed and hung up in the rooms of the Society.

Indian Museum.

No presentations were made to the Indian Museum.

During the year there has been no change in the Society's Trusteeship, and the Hon. Justice Sir Asutosh Mukhopadhyaya,

Kt., C.S.I., D.Sc., F.R.A.S., F.R.S.E., continues to be a member of the Board of Trustees of the Indian Museum on behalf of the Society under the Indian Museum Act X of 1910.

The Indian Museum celebrated its centenary on January 17th, 1914. In commemoration a centenary volume, giving an account of the history of the Indian Museum from 1814 to 1914, has been published. It includes biographical notices of curators and superintendents, and a reproduction of the Asiatic Society's house in 1828 taken from Savignhac's and Pearson's Asiatic Museum Illustrated, Part I.

Indian Science Congress.

The first Indian Science Congress was held in the rooms of the Society on January 15 17, 1914. A number of members attended from various parts of India. Among them were the delegates to the centenary of the Indian Museum which was celebrated at the same time. An account of the Congress was published in the Proceedings of the Society for May, 1914. A photograph of the members was taken, and a copy has been hung up in the rooms of the Society.

It has been arranged that the Second Indian Science Congress will be held at the Presidency College, Madras, on January 14, 15 and 16, 1915. His Excellency the Right Honourable Baron Pentland of Syth, G.C.I.E., has consented to be Patron, and the Hon. Surgeon General W. B. Bannerman, C.S.I., I.M.S., has been appointed President, with Prof. J. L. Simonsen as Honorary Secretary. The Government of India has asked Local Governments to allow selected officers to attend the Congress on duty.

Meetings.

The Society's General Meetings have been held regularly every month with the exception of October, 1914.

Lectures.

No lectures have been arranged for by the Society during the year.

Deputation.

On an invitation from the 19th International Congress of Americanists held at Washington in October 1914, Mr. B. Smith Lyman, a Life Member of the Society, attended the Congress as a delegate on behalf of the Society.

Agencies.

Mr. Bernard Quaritch and Mr. Otto Harrassowitz have continued as the Society's Agents in Europe—the latter up to the commencement of the war.

The number of the copies of the Journal and Proceedings

and the Memoirs sent to Mr. Quaritch during the year 1914 was 365, valued at £58-19-8 (Rs. 884-12), and of the Bibliotheca 199, valued at £16-19-4 (Rs. 254-8).

The number of copies of the Journal and Proceedings and the Memoirs sent to Mr. Harrassowitz during 1914 was 147, valued at £26-17-4 (Rs. 403), and of the Bibliotheca Indica 454, valued at £31-15-10 (Rs. 476-14).

There has been some difficulty with regard to two cases sent to Mr. Otto Harrassowitz at Leipzig on the 9th July, 1914. Owing to war, the steamer has deviated from her voyage and is at present interned at Syracuse. The matter is being dealt with.

Barclay Memorial Medal.

In terms of Rule 1 of the Barclay Memorial Medal, there was no award during the year.

In connection with the award for 1915, the following members were appointed to form a Special Committee to make recommendations to the Council:—Major E. D. W. Greig, I.M.S., Major A. T. Gage, I.M.S., Mr. C. C. Calder, Dr. B. L. Chaudhuri, B.A., Dr. P. J. Brühl.

Elliott Prize for Scientific Research.

The Trustees have decided to award four prizes for essays submitted in competition for the Elliott Prize for Scientific Research for 1913, viz.:—(1) "On chlorine in the nascent state. Chlorination with nitro-hydrochloric acid", by Babu Rasik Lal Datta. (2) "On Decimalization of Indian money at sight", by Babu Saradakanta Ganguly. (3) "On Titanium minerals; their estimation and utilization, with certain exhibits", by Babu Nagendra Chandra Nag. (4) "Untersuchungen über Doppelsalze und Komplexsalze. I. Mitteilung" and "Die Veränderlichkeit und Unbeständigkeit von Kobaltamminen", by Babu Nilratan Dhar. Babu Nilratan Dhar has decided to receive his prize of Rs. 210 in cash, instead in the form of a gold medal and cash. The awards will be made at the Ordinary Annual Meeting of the Society on the 3rd February 1915.

The subject selected for the Elliott Gold medal for the year 1914 was Mathematics, and fourteen essays have been received in competition up to date. This notification was printed in the *Calcutta Gazette* of the 16th December 1914. In view of the unusual delay in the publication of the notification, the Trustees have decided that the essays for 1914 would be received up to the end of March 1915.

Finance.

The Accounts of the Society are shown in the Appendix under the usual heads. In this year's account there is an additional statement under the head "Building Fund."

Statement No. 13 contains the Balance Sheet of the Society and of the different funds administered through it.

The credit balance of the Society at the close of 1914 was Rs. 1,96,630-4-3 against Rs. 2,41,332-7-5 in the preceding year 1913.

The decrease is accounted for by the transfer of the Imperial grant of Rs. 40,000 plus Rs. 4,200 interest accrued thereon to Building Fund as per Statement No. 12.

The Budget for the year 1914 was estimated at the following figures :—

	Rs.
Receipts	31,370
Expenditure	30,234

The actual receipts for the year, exclusive of 28 Admission fees and three Compounding fees, have amounted to Rs. 27,440-0-1, or Rs. 3,930 less than the estimate. The sum of Rs. 880 has been received as Admission fees, and Rs. 500 as Compounding fees; the Permanent Reserve Fund has been credited with Rs. 1,400.

The receipts have exceeded the estimate under the following heads :—

Subscriptions for the Society's Journal and Proceedings and Memoirs, Rs. 144; Miscellaneous, Rs. 46-1-9; and Indian Science Congress, Rs. 158.

The receipts have fallen short of the estimate under the following heads :—

Members' Subscriptions, owing to retirement and absence from India, Rs. 1,799-2-6.

Sale of Publications Rs. 1,354-9-0. This decrease is mainly due to sale proceeds not having been received during the year from Mr. Otto Harrassowitz of Leipzig.

Interest on Investments Rs. 1,154-6-2; this is accounted for by the transfer of a part of it to the Building Fund. The total receipts for the year have been Rs. 28,820-0-1.

In the budget the expenditure was estimated at Rs. 30,234 under seventeen heads, and under these heads the expenditure has amounted to Rs. 30,355-14-1 or Rs. 121-14-1 in excees of the estimate. During the year the Council sanctioned the following extra expenditure :—Grain Compensation Allowance Rs. 91, Indian Science Congress Rs. 845-14, and Furniture Rs. 121-8; total Rs. 1,058-6-0. The total expenditure for 1914 has amounted to Rs. 31,414-4-1.

The Permanent Reserve Fund at the close of the year amounted to Rs. 1,65,500 against Rs. 1,64,100 in 1913 The Temporary Reserve Fund at the close of the year was Rs. 36,200 against Rs. 83,200 in 1913. The decrease of Rs. 47,000 is due to the transfer to the Building Fund of Rs. 45,600 and to the Permanent Reserve Fund of Rs. 1,400. The Building Fund and the Trust Fund at the close of the year stand at Rs. 45,600 and Rs. 1,400 respectively.

The expenditure on the Royal Society's Catalogue (including subscription sent to the Central Bureau and discount recovered from subscription) has been Rs. 10,067-0-2, while the receipts under this head from subscriptions received on behalf of the Central Bureau have been Rs. 11,416-11-0 (including discount recovered from subscription). The sum of Rs. 8,991-15-0 has been remitted to the Central Bureau.

The Budget estimate of Receipts and Disbursements for 1915 has been calculated at

Receipts ..	.. Rs. 27,208	
Disbursements	.. ,, 29,944	Rs. 30,444
Extra Disbursement	.. ,, 500	

The Budget estimate of Receipts is about Rs. 1,612 less than the Actuals of 1914.

The Budget estimate of Disbursements is about Rs. 940 less than the Actuals of 1914. The expenditure provided in the estimate will be met by drawing on the Temporary Reserve Fund to the extent of Rs. 3,300, unless the income is larger than estimated.

Mr. R. D. Mehta, C.I.E., continued Honorary Treasurer throughout the year.

BUDGET ESTIMATE FOR 1915.

Receipts.

	1914. Estimate.	1914. Actuals.	1915. Estimate.
	Rs.	Rs.	Rs.
Members' Subscriptions ..	11,500	9,731	9,600
Subscriptions for the Society's Journal and Proceedings and Memoirs ..	1,608	1,752	1,608
Sale of Publications ..	2,000	645	1,000
Interest on Investments ..	8,392	7,238	7,060
Rent of Rooms ..	600	600	600
Bengal Government Allowance (Anthropology) ..	2,000	2,000	2,000
Bengal Government Allowance (Researches in History, Religion, Ethnology and Folklore of Bengal) ..	3,600	3,600	3,600
Assam Government Allowance (Anthropology) ..	1,000	1,000	1,000
Miscellaneous	100	146	100
Admission fees.. ..	..	880	640
Compound Subscriptions ..	..	500	..
Indian Science Congress ..	570	728	..
Total ..	31,370	28,820	27,208

Expenditure.

	1914. Estimate.	1914. Actuals.	1915. Estimate.
	Rs.	Rs.	Rs.
Salaries	5,750	6,399	6,600
Commission	600	598	600
Pension	420	340	180
Stationery	150	133	150
Light and Fans ..	200	326	200
Municipal Taxes ..	1,495	1,495	1,495
Postage	700	778	700
Freight	225	238	225
Contingencies	650	562	600
Books	2,600	813	2,000
Binding	1,000	991	1,000
Journal and Proceedings and Memoirs	12,000	11,863	8,000
Journal and Proceedings and Memoirs (Bengal and Assam grant) ..	..	..	3,000
Printing (Circular, etc.) ..	250	1,305	500
Auditor's fee	150	150	150
Petty Repairs	100	122	100
Insurance	344	344	344
Salary (for Researches in History, Religion, Ethnology, and Folklore of Bengal)	3,600	3,900	3,600
Grain Allowance ..	..	91	200
Indian Science Congress ..	..	845	
Furniture ..	..	121	300
Extra Expenditure.			
Repairs	..	..	500
Total ..	30,234	31,414	30,444

Library.

The total number of volumes and parts of magazines added to the Library during the year was 2,619, of which 179 were purchased and 2,440 were either presented or received in exchange.

A copy of the Bhubaneswar album containing 97 bromide photographs of archæological interest was also purchased for the Library.

Owing to lack of funds only a comparatively small number

of books was recommended for purchase during the year. If more money were available it would be possible greatly to increase the usefulness of the library to members of the Society. This is particularly the case in Anthropology and Archæology, for, except for the Society's library, very little literature on these subjects is available in Calcutta.

Mr. H. Beveridge has presented a copy of an abstract of the "Amal Salih" and the Council has decided to have the manuscript typed and bound and placed in the Library.

It has also been decided to repair all the book-cases, some of which had fallen into a bad condition. The work has already been taken in hand.

The preparation of a catalogue of the scientific serials available in Calcutta is progressing favourably. Slips containing particulars of the available periodicals have now been received from nearly all the principal libraries in the city. The work of compilation will shortly be taken in hand, and it is hoped that the catalogue will be published during 1915. When issued it is expected that the catalogue, in addition to its more obvious utility to scientific students, will prove of value in preventing different libraries from overlapping, that is to say, from purchasing expensive sets of volumes which may be consulted elsewhere in Calcutta. It should also encourage the acquisition of missing parts and of serials which are unobtainable, and it is hoped that funds will be forthcoming to enable the Society to take the lead in this respect.

During the year the Council appointed Mr. S. W. Kemp. Honorary Librarian to the Society, with a seat on the Publication Committee.

Publications.

There were published during the year ten numbers of the Journal and Proceedings (Vol. IX, Nos. 10-11, and Vol. X, Nos. 1-8) containing 500 pages and 38 plates.

Of the Memoirs, three numbers were published (Vol. III, Nos. 8 and 9, Vol. V, No. 2) containing 290 pages and 6 plates.

Numismatic Supplement, Nos. 21-23, have been published in the Journal and Proceedings, Vol. IX, No. 11, Vol. X. Nos. 5 and 6.

Exchange of Publications.

During 1914, the Council accepted only one application for exchange of publications, viz.: from the Orenbourg Scientific Archives Society, their "Travaux de la Commission Scientifique des Archives d'Orenbourg" for our Journal and Proceedings. The Orenbourg Society has been asked if they could supply a complete set of the back volumes of their publications in exchange for 22 volumes of our Journal, but no reply has yet been received.

On an application from the Education Department of the Government of India, asking for certain back volumes and numbers of the Society's Journal and Proceedings, wanting in their set, complete sets, as far as available, were supplied as a presentation to Government.

Philology, etc.

During the year under review several important papers of philological and antiquarian interest were contributed to our Journal and Memoirs.

In a Memoir entitled "Fragments of a Buddhist work in the Ancient Aryan Language of Turkistan," Dr. Sten Konow publishes the text, with an annotated translation, of six manuscript leaves—recovered from Khotan—which give us some idea of the form of Buddhism prevailing in Central Asia in ancient times.

In a Memoir entitled "Catuḥśatikā of Ārya Deva," Mahamahopadhyaya Hara Prasad Sastri, C.I.E., publishes fragments of a rare Sanskrit work of Ārya Deva called Catuḥśatikā, with the commentary of Candrakīrti, which were recovered from Nepal and throw much light on the early philosophical literature of the Mahāyāna Buddhists.

In a paper entitled "India in the Avesta of the Parsees," Sham-ul-Ulema Dr. Jivanji Jamshedji Modi shows that India was designated as Hapta Hindu in the Vendidad and Hindvo in the Yaśna, that it was one of the sixteen countries there mentioned as created by God, and that it formed the eastern boundary, as Nineveh formed the western, of the vast Iranian country.

Mahamahopadhyaya Dr. Satis Chandra Vidyabhusana in a paper entitled "The Localisation of Certain Hymns of the Rigveda" tries to prove that all the hymns of the Rigveda were not composed while the Aryans, in the course of their south-eastern journey, still lingered in Eastern Kabul and the Punjab, but that some of the hymns were composed even when the Aryans had advanced to the east as far as the river Kauśikī at the eastern boundary of the district of Darbhanga.

"The Date of Chashtana" is the title of a paper in which Babu Ramesh Chandra Majumdar tries to prove that Chashtana, the founder of a long line of S'aka Kings, flourished at Ujjaini at about 78 A.D.

Babu Rakhal Das Banerji in a paper entitled "Edilpur Grant of Kasavasena" gives a revised reading of the Grant to show that the King who executed it was Kasavasena and not Viśvarūpa. The same writer contributes another paper to our Journal entitled "The Belabo Grant of Bhojavarman" which records the grant of some land to a Brahman named Rāmadeva S'arman during the reign of Bhoja Varman, who was a

descendant of Jāta Varman, the founder of an independent Kingdom in East Bengal in the 11th century A.D.

"The Jhalrapatan Stone Inscription of Udayāditya" deciphered by Sāhityācārya Pandit Bisvesara Nath Sastri records the building of a temple of Siva in 1086 A D., during the reign of Udayāditya, a successor of Pramāra Bhoja.

"A Forgotten Kingdom of East Bengal" is the title of a paper in which Babu Nalini Kanta Bhattasali gives some account of the City of Karmānta (modern Kamta in Comilla) which is said to have been the capital of the Kingdom of Samataṭa where the Khaḍga family reigned in the 7th century A.D.

Rev. H. Hosten in a paper entitled "The Twelve Bhūiyās or Landlords of Bengal" presents us with a list of the twelve Bhūiyās as given by Frair Manrique in 1640 A.D., and infers from the existence of twelve Bhūiyās in countries other than Bengal that "the council of twelve" is an ancient institution in India. The same writer in a paper entitled "The Pitt Diamond and the Eyes of Jagannāth, Puri," quotes authority to show that the story of theft of the Pitt diamond from the Statue of Jagannāth was descredited by Anquetil du Perron as early as in June 1757 A.D.

S. P. V. Ramanuja Svami in his paper on "Jayamangalā" tries to prove that the author of the commentary on Kāmasūtra was Jayamaṅgala, who is not to be confounded with Yaśodhara, the copyist. Babu Vanamāli Chakravarti in his paper on "The Nature of Mokṣa" tries to show that mokṣa or liberation, according to the Nyāya, was a condition not devoid of pleasure. Rai Bahadur B. A. Gupte in a short note on "Kāth Kari" supports Sir James Campbell's derivation of the word from "Kāth" and "Kari", meaning a catechumaker.

Babu Nilmani Chakravarti in a paper entitled "Spirit belief in the Jātaka Stories" compiles from the Pali Jātakas an account of the various spirits which were believed to dwell in trees, etc., before whom sacrifices were offered even by kings.

In an article entitled "Fr. Jerome Xavier's Persian Lives of the Apostles" issued in the Journal for February 1914. Rev. Father H. Hosten writes that the work was completed and presented to Akbar in 1602, and fixes the date of its composition between 1604 and 1607. The article is supplemented with appendices by Messrs. H. Beveridge and Aga Muhammad Kazim Shirazi.

In the Journal for July and August Mr. Beveridge in his paper on "The date of the death of Shah Beg Arghun, the ruler of Sind" proves from historical data that the date inclines towards 928 A.H. as against the date 930 A.H. In his article on "Sirhind or Sahrind" Mr. Beveridge states that the original name *Sirhind* was changed into Sahrind by Shah Jehan. In

the Proceedings of the same month, Maulvi Hidayet Hosain has contributed a paper entitled "Note on a history of Firuz Shah. called Sīrat-i-Fīrūz Shāhī."

In Vol. III, No. 9 of the Memoirs, Rev. Fr. Hosten has also edited "Fr. A. Monserrate's Mongolicae Legationis Commentarius or the first Jesuit Mission to Akbar." The work gives in detail the history of the first Christian Mission in North India and the history of Akbar's campaign against Kabul. The work is accompanied with a map of Northern India exhibiting the longitude and latitude of all places passed through by Fr. Monserrate on his way to and from between Goa-Surat-Agra and Kabul.

Anthropology.

The following papers that may be classed as anthropological, to use the term in its widest sense, in whole or part were communicated to the Society in 1914. They are being published in the "Journal"—

1. *Grooved Stone Hammers from Assam and the Distributon of similar forms in Eastern Asia.* By J. Coggin Brown, M.Sc., F.G.S.
2. *Note on a Buddhist Sculpture from Kandy, Ceylon.* By J. Ph. Vogel, Ph.D.
3. *Spirit Belief in the Jataka Stories.* By Nilmani Chakravarti.
4. *Recent additions to our knowledge of the Copper Age Antiquities of the Indian Empire.* By Pandit Hirananda Sāstri.
5. "*So-sor-thar-pa*", *a code of monastic laws of Tibetan Buddhists.* By Mahāmahopādhyāya Dr. Satis Chandra Vidyābhūsana.

The following papers have been published in the "Journal", having been read either at meetings of the Society in 1913, or at the Indian Science Congress in January, 1914:—

6. *The Limestone Caves of Burma and the Malay Peninsula.* By N. Annandale, D.Sc., F.A.S.B. ; J. Coggin Brown, M.Sc., F.G.S., and F. H. Gravely, M.Sc.
7. *India in the Avesta of the Parsis.* By Shams-ul-ulma Dr. Jwanji Jamshedji Modi, B.A., Ph.D.
8. *Relics of the Worship of the Mud-Turtles (Trionychidae) in India and Burma.* By N. Annandale, D.Sc., F.A.S.B., and Mahāmahopādhyāya Haraprasād Sastri, C.I.E.
9. *Further descriptions of Stone Implements from Yunnan.* By J. Coggin Brown, M.Sc., F.G.S.

Sir George Duff-Sutherland-Dunbar's lengthy and profusely illustrated monograph on the Abors and Galongs of the Assam

Himalayas, with its anthroprometrical appendix by J. Coggin Brown and S. W. Kemp, is now ready for publication. It should prove the most important anthropological memoir published by the Society for a considerable number of years.

With this exception, and with that of the papers on prehistoric archaeology, it cannot be claimed that any great progress has been made in anthropological work in the year 1914. Indeed, it is difficult to see how real progress can be made, in view of the fact that there are at present no scientific men in India who can devote their time to the supremely difficult branches of biology comprised under the term anthropology, the few who have had a special training being more than fully occupied with other work. It is greatly to be hoped that arrangements may be made before long for the employment in the Indian Museum of a trained anthropologist as Assistant Superintendent. At present, the one direction in which our activities can be profitably extended is that of improving our collection of books and serial publications relating to the anthropological sciences.

Zoology, Botany and Geology.

ZOOLOGY.

An interesting account, by N. Annandale and F. H. Gravely, of the Fauna of the Limestone Caves of Burma and the Malay Peninsula forms part of a general paper, by J. Coggin Brown and the two above mentioned authors, on the limestone caves of the Shan States, Tenasserim, Siam, and the Federated Malay States. More than 70 species have been noticed, but none of the species is as highly specialized in correlation with the cavernicolous mode of life as are certain species found in European and North American caves, a difference probably due to the difference in the physiographical features of the caves in the two regions. As a rule, coloration is more easily affected than structural characters, as is especially well seen in *Coluber taeniurus* and in *Prosopeas tchehelense*. In other cases features, already pronounced in non-cavernicolous forms, become exaggerated in the corresponding cavernicolous phases. Of considerable interest is the curious fact that by means of stridulating organs possessed by *Scutigena decipiens* and situated near the base of the ventral side of the femur, a loud creaking sound is produced by legs severed from the body, an operation which probably aids the injured individual in escaping from its enemy.

Three zoological papers published during the year under review deal with species represented in the extensive collection made by Dr. Annandale in Galilee. H. B. Preston enumerates 43 species of Mollusca from the Lake of Tiberias, and describes 10 new species. A prominent feature of the molluscan fauna of the lake is the total absence or paucity of the thinner-shelled

genera, due probably to the large quantity of mineral matter suspended in the lake. Dr. G. Horvath deals with a collection of semi-aquatic and aquatic Rhynchota. Twenty-one species are represented, of which three are described as new. The general characters are those of the fauna of Southern Europe. R. H. Whitehouse describes three new species of Planarians: *Planaria tiberiensis*, *Pl. salina* and *Planaria barroisi*, all the specimens, however, being non-sexual, and their identification consequently only provisional.

The following papers on the fauna of Galilee were read, but have not yet been published in the Society's Journal:-

1. *Hydrophilidae from the Lake of Tiberias.* By A. D'Orchymont.
2. *Amphipoda and Isopoda from the Lake of Tiberias.* By Walter M. Tattersall.
3. *Chironomides du Lac de Tiberiade.* By J. J. Kieffer.

A paper of zoological as well as philological interest is Dr. N. Annandale's and Mahamahopadhyaya Haraprasad Shastri's paper on the Relics of the Worship of Mud-Turtles (Trionychidae) in India and Burma. Of the mud-turtles living in shrines as sacred animals *Trionyx gangeticus mahanaddicus* is kept in tanks in Puri and Sambalpur, *Trionyx formosus* is the turtle kept in the pool of the Arrakan Pagoda in Mandalay, and *Trionyx nigricans*, the Chittagong Mud-turtle, has its abode in a pond attached to the shrine of Sultan Bayazid of Bastam in Chittagong and is there represented by the only living specimens seen of recent years.

A number of papers dealing with zoological subjects were read at the First Indian Science Congress, held in Calcutta in January 1914. The following have been published during the year 1914 in the Journal of the Society:—

1. *On the reproductive system of Atopos, Simroth.* By Ekendranath Ghosh.
2. *The "Shous" or Big-horned Deer of Tibet.* By J. Manners-Smith
3. *A short account of our present knowledge of the Cestode Fauna of British India and Ceylon.* By T. Southwell.
4. *The Evolution and Distribution of certain Indo-Australian Passalid Coleoptera.* By F. H. Gravely.
5. *Presence and Absence of the Gall-bladder in certain Rodents.* By R. E. Lloyd.

BOTANY.

In "a Synopsis of the Dioscoreas of the Old World, Africa excluded, with descriptions of new species and varieties," Sir David Prain and Mr. I. H. Burkill publish diognoses of new species and varieties of Dioscorea and a key to this difficult

and troublesome genus. The following new species are described in detail—*D. cambodiana* from Cambodia; *D. membranacea* Pierre M.S. from Burma and Siam: *D tentaculigera* from the Shan Hills; *D. Clarkei* from the Naga Hills; *D. caesea* from Szechuan; *D. subcalva* from Southern China; *D. nitens* from Yunnan; *D. Martini* from Southern China; *D. velutipes* from the Shan Hills; *D. Kerrii* from Siam; *D. Arachnida* from Assam; *D. tamarisciflora* from the Malay Peninsula; *D. Pierri* from Cochin China; *D. Kalkapershadii* from the Deccan Peninsula; *D. Blumei* from Java; *D. Rogersii* from the Andamans; *D. Brandisii* from Burma; *D. Trimenii* from Ceylon; *D. pulverea* from Yunnan; *D. Loheri* from Luzon; *D. Foxworthyi* from Luzon: *D. Seemanni* from the Filchi Islands; *D. grata* from the Philippines; *D. Lepcharum* from Sikkim; *D. brevipetiolata* from Indo-China; *D. Havilandii* from Borneo; and *D. stenomeriflora* probably from the Philippines.

In his "Studies on the Leaf Structure of *Zoysia pungens*, Willd.", M. S. Ramaswami shows how the leaf structure of this species of sand grass is modified for the purpose of an economic utilization of a limited water-supply, the prevention of excessive transpiration and the protection against the effect of high winds and strong salination.

M. S. Ramaswami describes a new species of *Diospyros*, named by him *Diospyros Barberi*, which appears to be restricted to the Tinnevelly hills.

The same author gives an account of the extreme variability of the leaf of *Heptapleurum venulosum*, Seem., the leaf varying from simple digitate and bifoliotate to twice digitate with as many as twenty-four leaflets.

GEOLOGY.

Dr. H. H. Hayden has published a Note on the application of the Principle of Isostatic Compensation to the conditions prevailing beneath the Indo-Gangetic Alluvium.

The paper, already referred to, on "The Limestone Caves of Burma and the Malay Peninsula", contains also a short account of the physiography and geology of these caves, many of which are mere recesses, whilst in other cases they consist of series of passages and caverns, the latter sometimes of considerable diameter. The caves are situated in a series of limestones, probably everywhere of anthracolithic age, extending from Western China and the Philippines to the Malay Peninsula and Borneo. Recent and subrecent fossils buried in the cave deposits have not yet been investigated.

The following EXHIBITIONS of biological or geological interest were made at meetings held during the year under review. Mr. C. S. Middlemiss exhibited specimens of Indian jade and specimens and articles of jade and allied minerals obtained in Kashmir; Mr. J. Coggin Brown exhibited three new Indian

meteorites and Mr. H. Cecil Jones some specimens of marble and other building stones. Mr. H. S. Bion illustrated by lantern slides some features due to glacial protection.

Physics and Chemistry.

Six papers on Physical and Chemical subjects were published during the year in the Journal and Proceedings.

PHYSICS.

**Improvements in measurements with the Quadrant Electrometer.* By V. H. Jackson, M.A., and A. T. Mukerjee, M.A.

On a demonstration apparatus for determining Young's Modulus. By Gouripati Chatterjee.

CHEMISTRY.

Note on the Fat of Garcinia Indica, the so-called Kokam butter. By Harold H. Mann and N. V. Kanitkar.

**Hot Springs in Raj Darbhanga, Khargpore Hills, District Monghyr.* By C. Schulten.

**An Improved method of using oil gas.* By Kenneth Somerville Caldwell, B.Sc., Ph.D., F.I.C.

**The Action of Nitric Oxide in Metallic peroxides suspended in water, Part I.* By Barun Chandra Dutt and Surya Narayan Sen.

Dr. E P. Harrison exhibited a phenomenon known as the "Gore effect" in iron—an anomaly in the expansion coefficient of that metal occurring above 500° C.

The majority of the papers (those marked by an asterisk) were read before the First Indian Science Congress in January, 1914.

Messrs. Jackson and Mukerjee's work on the Quadrant Electrometer is of special value to workers in the tropics; the modifications effected by the authors make it possible for investigations on radio activity and ionisation of gases to be carried out during the whole year, whereas formerly work on these important branches of Physics was at a standstill except in the dry weather.

Dr. Caldwell's paper on Oil Gas is noteworthy, and seems likely to be of considerable practical importance.

Medical Section.

Mainly owing to so many of the medical members having gone to the war, only five meetings of the Medical Section have been held this year. The attendance at the meetings was only fair. Captain Godson, the Medical Secretary, having gone to the war, Dr. Hossack is taking over his duties.

Dr. Bentley read an interesting paper on Malaria in Lower Bengal, its origin and its remedy, which gave rise to a good discussion, in which the President, Lord Carmichael, took part. The beneficial results of the silt-bearing overflow, from the rivers of a deltaic region such as Lower Bengal, was emphasized by Dr. Bentley, who called attention to the ill-effects on the health of the Western districts of Bengal of permanent embankments preventing this natural process. A very large and important question was thus raised.

Lieut.-Colonel Newman dealt with operations for hernia, and Major MacGilchirst read an interesting paper on the relation between chemical constitution and pharmacological action.

International Catalogue of Scientific Literature.

Dr. W. A. K. Christie and Mr. F. H. Gravely were in charge of the Regional Bureau until April, when Dr. Christie left India for Europe and Mr. Gravely resigned. The Physical Science Secretary and the Biological Secretary were appointed Joint Honorary Secretaries of the Bureau. Dr. Annandale, the Biological Secretary, resigned in October and Dr. P. J. Brühl was appointed to succeed him.

1183 index slips were forwarded during the year to the Central Bureau and 92 volumes of the Catalogue were distributed.

The expenses of the Regional Bureau amounted to Rs. 546-2-2.

Bureau of Information.

The final proof of the catalogue of manuscripts in the Bishop's College Library has been corrected and returned, and a few enquiries have been replied to. His Excellency the Governor gave a hope that steps would be taken to give a wide circulation to the fact that there is a Bureau of Information in the Rooms of the Asiatic Society of Bengal, as it is not felt that full use is made of it by the public.

The Search of Sanskrit Manuscripts.

Few manuscripts were acquired during the year as it was thought undesirable to acquire more manuscripts without giving to the world a description of the large collection already made. Among the few manuscripts acquired there is one of exceptional importance. It is a manuscript of Vimalaprabhā, a commentary of Laghu Kālacakrayāna. The commentary is by Puṇḍarīka, who considered himself to be an incarnation of Avolokitesvara. It is written in the Bengali character of Central Bengal and it was copied during the reign of Harivarma Deva of Bengal (950-1000 A.D.). The work is known only in its Tibetan translation. The Sanskrit manuscript may therefore be regarded a great find.

Catalogue of Sanskrit Manuscripts.

The catalogue of the large collections of Sanskrit manuscripts in the Government Collection in the Society's Library has made fair progress this year. Last year the catalogue came up to 5,700. This year it is 7,138. It is high time that arrangements should be made for the printing of the parts of the catalogue, and so an application has been made to Government for giving the cataloguist some assistance for revising the work and printing different volumes.

Bibliotheca Indica.

Of the 29 fasciculi of texts of different dimensions published in the *Bibliotheca Indica* series during the year under review, 8 belong to Brahmanic Sanskrit, 2 to Buddhist Sanskrit, 3 to Tibetan, 1 to Sanskrit and Tibetan, 4 to Jaina Sanskrit and Prakṛita and the remaining 11 to Arabic and Persian literature. These fasciculi include Mr. H. Beveridge's translation of Akbarnāma, Vol. III, fasc. VI, and Maaṣir-ul-Umarā, Vol. I, fasc. V, VI; Lieut-Col. T. W. Haig's translation of Muntakhabu-t-tawarikh, Vol. III, fasc. III: and Dr. Ganga Nath Jha's translation of the Tantravārtika, fasc. XIII, XIV.

Of the new works sanctioned last year ten fasciculi have been published this year, viz. :—

1. *Śivapariṇaya*—a poem in the Kāshmīrī language by Kṛṣṇa Rājānaka, together with a glossary in Sanskrit by M. M. Mukunda Ram Sastri, edited by Sir George Grierson, K.C.I.E., Ph.D., D.Litt.
2. *Pṛthvīrāja Vijaya*—a Sanskrit epic with the commentary of Jonarāja, edited by S. K. Belvarkar, M.A., Ph.D.
3. *Dharmabindu*—a work on Jaina Philosophy by Haribhadra Sūri with the commentary of Municandra, edited by Dr. Luigi Suali.
4. *Vajjālaggam*—a Prakṛita poetical work on Rhetoric with Sanskrit version, edited by Professor Julio Laber.
5. *Prajñāpradīpa*—the Tibetan version of a commentary on the Mādhyamika Sūtra by Bhāvaviveka, edited by Dr. M. Walleser.
6. *Tabakat-i-Akbari*—the text of a history of India from the early Musalman invasions to the thirty-sixth year of the reign of Akbar, by Khwajah Nizamuddin Ahmad, edited by Mr. B. De, I.C.S. (retired).
7. *Tabakat-i-Akbari*—translated into English by Mr. B. De, I.C.S. (retired).
8. *Durrul Mukhtâr Fi Sharh-i-tanvîrul Abṣar*—a book on Law of Hanafî sect translated into English by Shamsul Ulamā Maulavî Mohamed Yusoof Khân Bahādur.

9. *Amal-i-Ṣāliḥ* or *Shāh-Jahan Nāmāh of Mohammad Ṣāliḥ Kambu*—the text edited by Prof. G. Yazdani.
10. *History of Shûstar*—the text of an account of Shûstar from the earliest time to A.H. 1169, edited by Khân Bahādur Maulā Bakhsh.

Search for Arabic and Persian Manuscripts.

The policy of ascertaining the existence and whereabouts of rare MSS. followed during the preceding two years has been maintained.

With this object the first travelling Maulavi has been examining the contents of several libraries not visited in preceding years.

The Maulavi visited five libraries at Lucknow, one at Kākūrī, one at Murādābād and three at Rāmpūr, and also examined the stocks of several MSS. dealers at Lucknow and Murādābād. Notices of these MSS., as well as of those of the more important MSS. in the Government of India collection, have been prepared and will be submitted shortly.

The Government of India has continued the grant of Rs. 5,000 a year for the next five years for the purposes for which the Research Fund was instituted.

Bardic Chronicles.

Mahamahopadhyaya Haraprasad Shastri submitted his Preliminary Report and his scheme on the search of Bardic Chronicles last year. The submission of the scheme completed the work which he offered to do for the Society in his note to the Council of the Asiatic Society of Bengal in February 1908. Dr. L. P. Tessitori was appointed to carry on the work.

At the time of the Shastri's appointment it had been found impossible to obtain the services of anyone who had specialized in the languages of which a thorough knowledge is essential to success in this work; and the thanks of the Society are due to the Shastri for pushing on the work as best he could in the absence of such special knowledge. It is unfortunate, but scarcely his fault, that the copies of Bardic manuscripts which he got together have proved to have no philological value. This, however, is the judgment which Dr. Tessitori has regretfully passed upon them. Now that Government has been fortunate enough to secure, in Dr. Tessitori, a scholar with the special knowledge requisite for the work, there is every reason to expect that results of real philological interest will be forthcoming, if means can be found to cover the necessary continuous expenses of the work. Dr. Tessitori has sent in an account of the work which has occupied him since his arrival in India. This account serves as an introduction to his scheme

for the Bardic and Historical Survey of Rajputana and will be published in the February number of the Journal. The scheme has been approved by the Council of the Society, and will be submitted by them to the Government of India.

Coins.

One gold, eleven silver, six copper and four lead coins were presented to the Society during the year. They included one gold fanam of the Cuddapah Mint, two Roman denarii, two (silver) punch-marked coins, five (silver) coins of the Gujarat dynasty, one (silver) Mughal, six (copper) Bahmani, one (silver) French Colonial, Mahé, and four (lead) Andhra coins. None of these presented any unusual features.

Mr. C. J. Brown took over the duties of examining the Treasure Trove from the Central Provinces in December 1913. Two finds of copper coins were then awaiting examination. They consisted of 796 coins of the Bahmani dynasty, of which 207 were distributed among various museums. A few unrecorded dates occurred, and a short note on the two finds appeared in Numismatic Supplement No. XXII of the Society's Journal.

During the past year, 1914, Mr. Brown has examined in all fourteen finds. Three were of gold, consisting of 43 coins, all of which have been distributed. There were eight hoards of silver coins, two of which contained worthless coins and were returned; from the remaining six finds 379 coins were distributed, the total number of silver coins examined being 903. Two finds of copper consisting of 746 coins were examined and 121 coins sent to various museums.

Among the gold coins one find consisted of 23 Gupta coins, chiefly of Chandra Gupta, and made a useful addition to the Nagpur collection. Two of these—'Lion Trampler turned to left' type of Chandra Gupta—were rare, and nearly all were of different types.

The silver coins were exceptionally good, by far the best find being a small one from Buldāna of 64 coins. It contained the following rare coins: *Aurangzeb*, Aḥsanābād 1116-48 R., Bhakkar 1091-24 R., 'Azimābād 1118 SOR.; *'Āzam Shāh*, Burhānpūr 1119 aḥd.; *Kām Bakhsh*, Bījāpūr aḥd.; *Shāh 'Ālam I*, Bahādurgarh 1123, Haiderābad (Farkhanda-bunyād) 1120-2 R., Imtyāzgarh 1122, and *Jāhāndār*, Bahadurgarh aḥd.

In other finds the following occurred: *Shāh 'Ālam I*, Muḥammadābād 1120-2 R; *Farrukh-Siyar*, Allahābād 1127-3 R., 'Ālamgīrpūr 7 R: *Jāhāndār* Arkāt aḥd; *Shāh 'Ālam II*, Kūnch 1194-22 R., Ravishnagar Sāgar, many dates, Bālānagar Gaḍha, many dates, Chhatarpur, many dates.

A find from Buldāna produced a number of coins of Shāh 'Ālam II of Mahrata type minted in the name 'Alī Gaur. Though in none of them can the mint name be deciphered,

so much appears as to show that the tentative reading—ābād Pūna—no longer holds: the last three letters are ربت not لونه—.

No unique coin has been found; but two undecipherable mints may, when read, prove to be of hitherto unknown mints. An interesting find of small square copper coins came from Bālāghāt: they appear to be imitations of the Mālwa style, but the inscriptions are taken from Gujrāt, Sūrī or Mug͟hal types for the most part. Mr. Brown has written a note on these which will appear in the Numismatic Supplement in due course.

The finds on the whole appear to have been exceptionally good, and the Nagpur collection, especially the Mug͟hal section, has been substantially enriched.

The Hon'ble Justice Sir Asutosh Mukhopadhyaya, Kt., Senior Vice-President, delivered an address to the Society.

Annual Address, 1915.

YOUR EXCELLENCY, LADIES AND GENTLEMEN,

I do not use the language of conventional courtesy when I say that I deem it a high honour to be permitted, in response to the call from the Chair, to address this annual gathering of our members, and to place before them a brief outline of the present position of the Society and a rapid survey of the activities of our scholars and investigators during the last twelve months.

It is satisfactory to note that the numerical strength of the Society has been fairly maintained during the last year. Seven years ago, there was a rapid rise on account of the large accession of strength to the newly founded medical section. and the maximum was reached in 1911. Since then, there has been, as might have been expected, a slow decline, and during the last year, we had on our rolls precisely as many members as in 1909. This circumstance has slightly affected our financial situation; but, happily, there is no ground for alarm or anxiety. The popularity of the Society continues unabated, and the decline in numbers during the last year is due, in some measure at least, to the war; for many of our members are absent in Europe to take part in the titanic struggle between militarism and civilization, which has riveted the attention of the civilized world. Not only have we thus lost in subscriptions, but we have also suffered on the otherwise steady income from the sale of publications on the Continent, and it is not a matter for surprise that two

cases of books, sent to our agents before the outbreak of the war, are now on a steamer which has deviated from her voyage and lies interned at Syracuse. In these unfavourable circumstances, the question of the erection of a new building for the Society, which has been recognized as a pressing need in recent years, has necessarily been postponed for the present. These must be classed as inevitable accidents from which even scholars engaged in the pursuit of peaceful avocations are occasionally liable to suffer. It is a matter for keener regret, however, that this unforeseen financial difficulty has compelled us to restrict our expenditure on the purchase of new books. This is distinctly a cause for disappointment to our members, as in various important branches of knowledge, foremost amongst them anthropology and archaeology, ours is practically the only reference Library accessible to scholars in Calcutta.

Let us now turn from the story of our internal administration, not always free from troubles and difficulties, to an appraisement of the literary and scientific work of our members; here, at any rate, it is a pleasure to find that our high standard has been maintained and that there is no legitimate ground for dissatisfaction. In the field of Philological and Antiquarian Research, the most interesting of the papers published during the year is a memoir contributed by Dr. Sten Konow, in which he has deciphered six manuscript leaves recovered from Khotan and acquired by the Society from a Central Asian traveller some years ago. The text, now first published, gives the fragments of a Buddhistic work written in the ancient Aryan language of Turkistan, and enables us, even in its fragmentary condition, to obtain a glimpse of the type of Buddhism which prevailed in Central Asia in by-gone ages. Two other papers of considerable interest to students of ancient Indian History and Culture have been contributed by two well-known scholars; in the first of these, Dr. Satischandra Vidyabhusan seeks to establish that the hymns of the Rigveda were not all composed by the Aryans before they entered India and settled in the Punjab, and that some at any rate of the hymns were composed in later times when the Aryans had advanced as far as the river Kuasiki in what constitutes the modern District of Darbhanga. This thesis is of a highly controversial character, and deserves careful scrutiny by scholars who maintain that the Rigveda, the earliest monument of Indo-Aryan civilization, was composed while our forefathers still occupied the plains of Asia Minor. The other paper, to which I have adverted, has been contributed by Dr. Jivanji Jamshedji Modi, who takes us back to times equally remote and traces out references to India in the Avesta of the Parsees Of papers purely historical, we have several valuable specimens. Babu Rameschandra Majumdar, who

has devoted himself to the investigation of many an obscure problem relating to the history of India at the beginning of the Christian era, seeks to prove that Chastana, the founder of a long line of Saka Kings, flourished at Ujjain in the last quarter of the first century of the Christian era. Babu Nalinikanta Bhattasali, another well-known research student, gives an interesting account of the kingdom of Samatata in what is now modern Comilla, whose rulers were powerful sovereigns in the seventh century but have now passed into oblivion. The Rev. Father Hosten has, with great industry, edited Monserrate's work on the first Jesuit Mission to Akbar, which not only gives in detail the history of the first Christian mission in Northern India, but also incidentally furnishes an account of the campaign of the great Emperor against Kabul. Father Hosten has also given an account of Father Jerome Xavier's Persian lives of the Apostles, which was presented to Akbar in 1602. In another paper on the Twelve Bhuiyas or Landlords of Bengal, the same learned author seeks to maintain the position that the Council of Twelve is an ancient institution in India. The inference may possibly be true, but the generalisation is by no means conclusively supported from the data as yet available. These are all papers of considerable importance, but any review of the philological work of the Society during the last twelve months would be open to the charge of incompleteness, without mention of two contributions important to the student of Indian Philosophy, I mean, the Catuhsatika of Arya Deva, by Mahamahopadhyaya Haraprasad Sastri, which elucidates the philosophical literature of the Mahayana Buddhists, and the paper by Professor Banamali Chakrabarti in which he shows that Moksha or liberation, according to the Nyaya, was a condition not devoid of pleasure.

When we pass on from the philological papers to the anthropological contributions, we find them equally varied and interesting. I use the term anthropology in a comprehensive popular sense, so as to include all papers illustrative of the manners, customs and religion of the people. Mr. Coggin Brown gave fascinating accounts of stone implements from Yunnan, as also of grooved stone hammers from Assam and Eastern Asia. Dr. Annandale and Mahamahopadhyaya Haraprasad Sastri described relics of the worship of mud turtles in India and Burma, which are kept as sacred animals in such distant places as Puri, Sambalpur, Chittagong and Mandalay. Dr. Satischandra Vidyabhushan gave a complete code of monastic laws of Tibetan Buddhists, which, I hope, will be some day contrasted with the rules which regulate the lives of the various sects of monks and ascetics in this country. Finally, we had an interesting note by Babu Nilmani Chakrabarti on such stories from the Pali Jatakas as indicate a belief in spirits and the efficacy of their propitiation. It is necessary

to lay stress, however, on the fact that what is here popularly accepted as anthropology would hardly be deemed deserving of that appellation in scientific circles. Investigation in Anthropology on scientific lines is an impossibility without a knowledge of Biology, and in this country, there is unfortunately a singular lack of men adequately qualified by previous training for anthropological work on really sound and satisfactory lines; the few who have the requisite qualification are preoccupied in other spheres of research. In view of the unquestioned importance of this work, I willingly avail myself of this opportunity to emphasize the opinion expressed by the Council of the Society, that for the progress of anthropological studies in this country, it is essential that we should have on the staff of the Indian Museum a trained anthropologist as an assistant superintendent. Till funds are available for the employment of a duly qualified officer, an earnest endeavour must, however, be made to secure an adequate collection of books and periodicals, essential for a scientific study of anthropology. In this connection, an excellent suggestion has been made by our Anthropological Secretary as to the disposal of the grants hitherto made by the Government of Bengal and the Government of Assam with a view to facilitate the study of Anthropology. A part, at any rate, if not the whole, of these grants may, for a limited period, at least, be applied to build up an anthropological library, so as to place within the reach of intending investigators ample facilities requisite for study and research. Meanwhile, it is gratifying to find that we have just published at least one work on anthropology, which will do credit to the Society and enhance its reputation, namely, the profusely illustrated monograph on the Abors and Galongs of the Assam Himalayas by Sir George Duff Sutherland Dunbar, with its anthropological appendix by Messrs. Coggin Brown and Kemp.

The record of the contributions received by us in the domain of the physical and natural sciences is by no means disappointing, is, indeed, distinctly encouraging. It would be idle to ignore the well-known fact that in branches of knowledge like Zoology, Botany and Geology, there are recognized organs of communication of the original work accomplished by our investigators, such as the publications of the Geological Survey, the Botanical Survey and the Indian Museum. On the other hand, in the domain of subjects like Physics and Chemistry, if the result achieved has no special local interest, the investigator not unnaturally seeks to bring his work to the notice of his fellow-workers in the same department and to the learned world at large, through the medium of special organs of communication. I am inclined to maintain, consequently, that if we do not take an unreasonable view of the actual relation of the Society to the entire aggregate of scientific activi-

ties in the country, there is no occasion to be dissatisfied with the contributions made by our members in the department of Physics, Chemistry, Zoology, Botany and Geology. We have, in the first place, published a series of important papers read at the First Indian Science Congress held last year in this city under the auspices of the Society. Indeed, I think we may safely maintain that all that was not of ephemeral interest and was worthy of permanent preservation have found a place in our publications. In addition to this, we have continued the publication of zoological papers dealing with the extensive collection made by Dr. Annandale in Galilee. We have also published an extremely interesting account of the fauna of the limestone caves of Burma and the Malay Peninsula by Dr. Annandale and Messrs. Coggin Brown and Gravely. I have selected these papers out of a large number for special mention, as they are specimens, not of isolated investigations, but of continuous pieces of work carefully planned and systematically undertaken. At the same time, I have not the remotest desire to underrate the value of other scientific contributions to which I am unable specifically to refer; some of them are unquestionably of great practical importance, for instance, the work of Professor Jackson and Mr. Mukerjee on the Quadrant Electrometer, which will make it possible for investigators to carry on their researches on Radio-activity and Ionization of Gases continuously throughout the year, whereas, hitherto work in these important branches of Physics had to be suspended except in dry weather. This brief and imperfect review of the activities of our members during the last twelve months is full of hope and promise, and this encourages me to claim your indulgence this evening, while I venture to call attention to other fields of investigation to which the energies of our scholars may, I trust, be profitably directed.

One important department which still awaits systematic exploration by the assiduous and brilliant investigator is that of Tibetan Studies. Here, indeed, is a field which, it seems to me, should have a special attraction to our members interested in philological and antiquarian studies. It was through the never-failing exertions of the great Hungarian scholar, Alexander Csoma de Koros, one of the most illustrious names on the bead-roll of our members, that the mysteries of the Tibetan language and literature were first satisfactorily solved. To the intuitive insight and penetrative genius of Csoma, we owe the first Tibetan Grammar and Tibetan Dictionary published by us, and though much has been investigated and brought to light since his days, his pioneer work has never been superseded. Since then, the supreme importance of Tibetan studies to the investigator of the history, religion and culture of early and mediæval India has been realized in an ever-increasing degree. It is now well known that there lie

imbedded, in the great Encyclopaedias constructed by the industry of Tibetan Lamas under the patronage of accomplished rulers, versions of Sanskrit works the originals whereof have long disappeared from the country of their birth. It is only during the last twelve months that the Society has been able to complete the publication of the Avadana Kalpalata of Kshemendra, the Sanskrit text whereof, nowhere available in India, was discovered in Tibet written in Tibetan characters and accompanied by a beautiful Tibetan version. The restoration of this monumental work has occupied for many years three distinguished editors, one of whom, Panditi Harimohan Vidyabhushan, at one time the Oriental Librarian of the Society, died in the early stages of the publication, while the other two, Rai Saratchandra Das Bahadur and Dr. Satischandra Vidyabhushan, have spent a life-time in the accomplishment of the laborious task committed to their care. To take another illustration, Mahamahopadhyaya Haraprasad Sastri has just acquired for the Society the manuscript of a commentary by Pundarika on the Laghu Kalacakrayana, called Bimalaprabha. The manuscript is believed to be more than nine hundred years old and brings to light an important work which has hitherto been assumed to be irrecoverably lost and has been known only in its Tibetan version. A close comparison of the long-lost original and of the version preserved in Tibet would obviously be of the greatest interest and would at once throw light upon the question, through what developments, if any, the work has passed. But apart from the intrinsic interest which attaches to Tibetan studies from the Indian point of view, we must not overlook the patent fact that as Tibetan studies have in recent years attracted the attention of well-equipped scholars throughout the learned world, Indian investigators, unless they pursue the path steadily and assiduously, will soon find themselves outstripped and hopelessly left behind. Since the British Expedition to Tibet in 1904, these studies have made considerable strides, and scholars have now at their disposal original texts which were practically unattainable to men of the last generation In Calcutta, for instance, complete copies of the Tanguyr and the Kanguyr are accessible both in the Library of the Society and the University. Elementary readers and text-books have been prepared at the instance of the University, which has also published an elaborate grammar of the Tibetan language prepared by Mr. H. B. Hannay, an advocate of the Calcutta High Court. Beginners have further the benefit of useful manuals, one by Mr. Henderson, and another by Mr. Bell. the British Political Resident at Sikkim. In addition to this, editions of original Tibetan texts have been made available to scholars by the publications comprised in our Bibliotheca Indica Series and in the Bibliotheca Buddhica Series of Petrograd. Work

of first-rate importance has also been accomplished by the Buddhist Text Society of Calcutta, under the joint editorship of Rai Bahadur Saratchandra Das and Dr. Satischandra Vidyabhushan. They have opened up a new mine of knowledge, of inestimable value as a contribution to the study of Indian Philosophy, as has been freely acknowledged in no ambiguous terms by such an exacting scholar as the late Prof. Max Müller in his treatise on the six systems of Indian Philosophy. We are further indebted to Dr. Max Walleser for the Tibetan version of the commentary of Buddha-palita on the Madhyamika Sutra, and the Prajna Pradipa of Bhavaviveka, to Prof. Louis dela Vallee Poussin for the commentary Chandrakeerti and of Bineeta Deva on the Nyayabindu; to Prof. Sherbatsky for the text itself of Nyayabindu with the commentary of Dharmottara, and to Babu Pratapchandra Ghosha for the Satasahasrika Prajna Paramita. But for the publication of these works, it would have been impossible for scholars to obtain an accurate and comprehensive view of the Madhyamika Philosophy. In the way of lexicographical work, we have the epoch-making Dictionary by Rai Bahadur Saratchandra Das published under the patronage of the Government of Bengal, and the Tibetan version of the Amarkosha, the oldest metrical lexicon in the Sanskrit language, edited by Dr Satischandra Vidyabhushan together with a commentary called the Amaratika Kamadhenu by a Buddhist sage named Subhuti, possibly the oldest commentary extant on the original work. We have further in hand the Tibetan-Sanskrit-English Vocabulary of Mahabutpatti, transcribed from the Tibetan Encyclopædia by Alexander Csoma de Koros, of which the original manuscript is one of our most precious possessions; under the editorship of Dr. Ross and Dr. Satischandra Vidyabhushan, nearly two-thirds of this great undertaking has been already accomplished. The scholar last mentioned has also published the Sragdhara Stotra with an English Version, which throws considerable light on the Buddhist Tantra literature of the eighth century. Amongst biographical and didactic works, may be mentioned the Namthar, an autobiography of Milarupa, a peripatetic saint of the thirteenth century; the Gurbum, a collection of sacred songs of that saint; the Byachoi, or Religion of Birds, which enshrines moral lessons of striking beauty—all made accessible by the labours of Dr. Satischandra Vidyabhushan. Amongst historical works, we have the Kesarsaga which embodies the romantic story of the Emperor Kesar, edited by Rev. A. H. Francke, the author of a history of Western Tibet. In the department of philosophical writings, we have the History of the Mediæval School of Indian Logic, originally composed by Dr. Satischandra Vidyabhushan as a thesis for the Degree of Doctor of Philoso-

phy and subsequently published by him under the auspices of the University; this has made accessible to us an elaborate account of Buddhist Logic recovered from Tibetan sources, and its value as a contribution to the history of philosophic thought may well be judged from the extensive quotations made therefrom in the monumental work in Italian on Indian Philosophy by Dr. Luigi Suali of the University of Bologna. But even when we have faithfully recounted the labours of Tibetan scholars in recent years, the fact remains unquestioned that vast tracts of territory still lie unexplored, as we have not yet been able to catalogue even the contents of the two great Encyclopædias. Dr. P. Cordier, whose loss we keenly feel and deeply mourn, had taken in hand the compilation of a catalogue of the Tanguyr, of which two volumes have been published in the Bibliotheque Nationâle of Paris. Dr. Hermann Beck has undertaken a catalogue of the Kanguyr, and has already published a volume in the Koniglichen Bibliothek of Berlin. Finally, our Society has for some years past engaged a Lama who has made considerable progress with the preparation of a descriptive catalogue of both the Tanguyr and the Kanguyr, under the guidance of Dr. Satischandra Vidyabhushan. We have thus ample evidence that substantial progress has been made in Tibetan studies during the last ten years and that our Society and its members may justly feel proud of their contributions in this department. We now require fresh accession of strength to our band of workers, for the task to be accomplished is inexhaustible and will furnish ample occupation to successive generations of investigators.

Another promising field of investigation, of which we hardly realize the extent at the present moment, lies in a very different direction, I mean the Bardic and the Historical Survey of Rajputana. Not many years ago, the Government of India placed at our disposal a sum of Rupees two thousand and five hundred to enable us to obtain a preliminary survey of the work to be accomplished. Our endeavours to secure the services of a competent scholar in that part of the country proved fruitless, and even a beginning was not made till Mahamahopadhyaya Haraprasad Sastri volunteered his services. The preliminary report submitted by the Sastri embodies the results of his tour and personal enquiry, and is an extremely interesting document. Since then, the Secretary of State has appointed an accomplished and enthusiastic Italian scholar, Dr. Tessitori, to undertake a regular survey of the Bardic Chronicles of Rajputana. Dr. Tessitori, who has spent the best part of a year in Rajputana and has collected valuable information as to the bards and their compositions, has submitted a comprehensive scheme for the survey, which has been accepted by the Council of the Society and is now before the

Government of India. I am not now concerned with the question of the value of the preliminary report submitted by the Sastri. It seems to me that the question which really interests scholars as well as the educated public is the value and significance of the great work about to be undertaken, and on this aspect of the matter I shall, with your permission, make a brief reference in the course of this address.

The Bardic and Historical Survey of Rajputana is a work which has a two-fold importance, historical and literary; it has also a political importance, which cannot be altogether ignored, though it may not weigh with the theoretical investigator. The double importance of the survey is shown by its object, which is to rescue from oblivion and save from probable destruction an entire literature of an almost exclusively historical character, and, at the same time, in the particular case of Bardic poems, of the highest literary value. As the whole of this literature exists only in manuscript and is scattered all over Rajputana, it has always been impossible to know how vast it is, but the little portion of it that has come to the knowledge of a few investigators is sufficient to enable one to guess how extensive the mine must be The period covered by this literature extends from about the fourteenth century A.D. to the present day, five or six centuries in all; but, in scattered couplets first preserved in the oral tradition and only in comparatively recent times committed to writing, we have records which date back to a still greater antiquity.

The most characteristic feature of this literature is that it is the literature of a particular caste, the Rajputs. It seems to have arisen under the aegis of the Rajput political power, not long before the first Muhammadan invasions, and to have flourished under the enlightened patriotism of the Rajputs. It is to the Rajputs, therefore, that the ultimate credit is due, not a small credit for a race of warriors, who in the pause of arms found time to devote to literary pursuits. May be, their action was inspired by a desire to gratify national vanity, as the subject of this literature was principally furnished by their own military exploits; but to show that they were not devoid of a literary taste, examples can be quoted of warrior kings who were good judges of poetry, as also excellent composers. Theirs was, therefore, an intelligent maecenatism. It is superfluous to add that the fact that this literature is confined to a description of the life and history of the Rajputs, does not diminish its importance nor impair its universal character, as during the times in question, the Rajputs were the principal ruling race and the only makers of history.

This vast literature falls naturally into two sections: Bardic poems and prose chronicles. The former, which are older in origin and more extensive, are the products of the

Bards, and they have both a literary and an historical interest; whereas, the latter are the products of different classes of people and their interest is only historical.

If under the term "bardic poems" we comprehend all kinds of bardic poetry, we have here a literature which includes works ranging from a single couplet to poems of eight to ten thousand verses. Its earliest products are isolated couplets, mostly anonymous, composed in a simple and often rude style and devoid of rhetorical embellishments. Some of these were undoubtedly composed as early as the fourteenth, possibly the thirteenth century, and were for a long time preserved only in oral tradition, so that when they were committed to writing, they had been already much modernised in form. To-day they are found collected in manuscripts, mostly under the general title of Phutkar Geeta, meaning scattered or miscellaneous songs and mixed with other songs of a more recent composition. Their chief value consists in the fact that they generally record some historical event or date, and since—when genuine—they are obviously contemporary with the event recorded, they afford unimpeachable historical evidence. An illustration of this kind of traditional couplets is the following *duhas*, which commemorate the foundation of Jodhpore and Bikaner:

"In the year Samvat fifteen hundred and fifteen, on the eleventh of the month of Jyastha, on Saturday, Jodho built the fort Meharana."

"In the year Samvat fifteen hundred and forty-five, on the second day of the bright fortnight of Vaisakha, on Saturday, Viko laid the foundation of Bikaner."

Here is another specimen, which celebrates the wonderful rapidity with which the Rathors established themselves in Rajputana and Gujarat after the fall of Kanauj under Mahomedan invaders:

"Like the sky is surrounded by the stars, so was the earth surrounded by the Rathors; Chohils, Mohils, Cavadas Solarikis and Gaurs—all these races were killed by the Rathors in Pali, where they had gone to marry. Having come from Kanauj, taking forces for some expedition, the Rathors seized the Gohils by the neck and took from them Kher, with the power of their sword. Further, they spread their oath (i.e., rule) over Idar and Sankhadar and took the nine Castles of Marwar along with Sam. Thus, sword in hand, the Rathors deprived of their power many other kings. And this was done by the three of the Rathor Siho of the Solar Dynasty, namely Asathama, Soninga and Aja."

There is a class of these traditional songs, which is known under the title of "Sakh Ra Geeta" or "testimonial songs," and they are quoted in prose chronicles as evidence of the correctness of the facts related. Here, again, when these testi-

monial songs are genuine, that is, contemporary with the facts in question, they can well be classed as historical documents. An example is furnished by the following song, which records a battle fought at Kusano, against odd forces of Mahomedans, by the Rathor Varjag, under the reign of Satal of Jodhpur, the founder of Satalmir towards the middle of the fifteenth century. The battle is compared by the bard to the gigantic fight in the Mahabharata.

"Like the great war fought by Arjuna in the Kurukshetra against the valiant Kauravas, such a battle Varjag fought at Kusano, against the Mahomedan forces, hand to hand. Like in the great nocturnal fight (described in the Mahabharata) Varjag fought all night long, and like in the diurnal fight (in the Mahabharata), he fought in day time. In the same way as Arjuna fought for Yudhisthira, thus Varjag fought for Satal. In the same way as the Kauravas were decimated in the Kurukshetra, so were the Mahomedan thieves at Kusano, and in the same way as Vishnu by coming to the aid of Yudhisthira procured him victory, so did Varjag to Satal."

Huge Bardic poems also exist in good numbers. Each Rajput State has its own collection. In Marwar, one of the most famous is the Suraj Prakas by Karni Dan, a distinguished Carana, whose manifold abilities as a politician, a warrior and a scholar are eloquently described by Col. Tod in the tenth chapter of his Annals of Marwar. The poem comprises 7,500 stanzas. The subject is a description of the reign and exploits of the Rathor Maharajah Abhai Singh of Jodhpur, with whom Karni Dan was contemporary, and in whose politics and wars he played a prominent part. But, like all huge poems, it contains a mass of other information, foreign to the principal subject, but deemed essential and indispensable for the dignity of the work as well as the scholarly reputation of its author. Most of this extraneous matter is given as an introduction, and it is a kind of paraphernalia, never absent from any Bardic work of importance. Indeed, in this respect, all huge Bardic poems are framed much on the same plan. First comes a series of propitiatory verses in the form of *stuti* to the five deities, Ganapati, Sarasvati, Siva, Surya and Narayana; next, an explanation of the title and subject of the poem, and after this, a *rajavamsavali* or genealogical sketch of the ruling family to which the hero of the poem belongs. This *vamsavali* is not a mere string of names; it occupies over one-third of the whole work, and is a poetical history of the Rathor family from its mythical progenitor Brahma down to Abhai Singh. Since tradition traces back the Rathor family to the Solar dynasty to which Rama belonged, this *vamsavali* naturally contains also an account of Rama, a miniature Ramayana not altogether devoid of interest. The biographical and historical particulars concerning the other members of the family natur-

ally become richer and richer as we get down with the times. The most diffuse account is that of Maharajah Ajit Singh, the father and predecessor of Abhai Singh, and here the description of the deeds of the latter, as heir-apparent to the throne, plays a prominent part. With the installation of Abhai Singh at the hands of the Emperor himself, the poem may be said properly to begin, and the auspicious occasion gives the bard an opportunity not only to describe the coronation festivities, but also to draw a gorgeous picture of the splendour of the Court in Jodhpore and the lustre of the Durbar. This picture starts with a description of the magnificence of Jodhpore, the splendid gardens, the Monarch and his Court; and the description is embellished and vivified in such a way as to enable the poet to make a full display of his erudition. To take an example: when describbng the singers in the Presence, he manages to insert a scienitific enumeration of the various tunes and musical instruments, and when describing the Pandits and the Caranas, he similarly adds a minute description of all their Sanskrit learning and poetical abilities. But Karna Dan does not stop here. He imagines that Abhai Singh asks him about the six *bhasas*, and he devotes pages to explain their nature. They are, Sanskrit, Nagabhasa, Apabhramsa, Magadhi, Sauraseni and Prakrit, the last including Braja, Marwar, Panjabi, Marathi, Sorathi and Sindhi. He also quotes his authorities, the Sarasvati for the Sanskrit, the Nagapingala for the Nayabhasa, the Vinadavijaya for the Apabhramsa, the Haimavyakarana for the Sauraseni and the Jainasastra for the Magadhi; for the vernaculars which he includes under the term Prakrit, he cites no authority, as, he says, he knows them by practice. It is important to note that the knowledge of the six Bhasas is considered an indispensable qualification for any Carana of fame. After this long introduction, the poetical chronicle of the reign of Abhai Singh begins at last, though the bulk is devoted to a pompous description of Abhai Singh's splendid campaign against Sir Buland. Further reference to the Suraj Prakas is needless, as quotations will be found in the Annals of Marwar by Col. Tod, who used the poem as the principal source of information for events relating to the period in question.

It follows from what I have stated that Bardic poems, whether short or long, are capable of use as historical documents, specially when contemporary with the facts related. No doubt, when we utilize them as such, it is necessary to proceed with great circumspection and allow for exaggerations, for disguises of unpleasant particulars, which is a rule with the bards, who, above all, are favourites of the monarchs and are anxious to please them. But Bardic poems are also important as literary documents. They have a literary value, and taken together form a literature, which, when better known, is sure

to occupy a most distinguished place amongst the literatures of the Neo-Indian vernaculars. The language in which this literature is written and which has remained practically unknown and neglected to this day, is only a form of the Old Western Rajasthani, that is, the old vernacular of Rajputana and Gujrat. I do not propose to deal with it in detail on the present occasion, as Dr. Tessitori has gone into the question in his paper on the Bardic and Historical Survey of Rajputana, and in his Notes on the Grammar of the Old Western Rajasthani. This old Western Rajasthani language, called by the bards Dingala, to distinguish it from Pingala (the Brajabhasa), marks a very important stage in the history of the development of the Neo-Indian vernaculars, as it forms the link between the Saurasena, the Apabhramsa and the Modern Gujarati and Marwari. Concerning this language, which had been first mistaken for simply the old Gujarati, Sir George Grierson writes: "We have thus a connected chain of evidence as to the growth of the Gujarati language from the earliest times. We can trace the old Vedic language, through Prakrit down to Apabhramsa, and we can trace the development of Apabhramsa from the verses of Hemchandra down to the language of a Parsi newspaper. No single step is wanting. The line is complete for nearly four thousand years" (Linguistic Survey of India, Vol. ix, part ii, p. 327).

But I will leave aside the linguistic importance of the Bardic productions here, and look at them from the literary point of view. I have already said that these poems have a literary value. The bards, in general, and particularly Caranas, who are the most distinguished amongst them, have been in many cases men of letters, and they have specially been so when residents at Court. Many of them knew not only Dingala and Pingala—the languages used in Bardic poetry—but also Sanskrit, and their attainments were such that titles like Kavisvara. Kaviraja were often conferred upon them. Tod, in the tenth chapter of his Annals of Marwar, alludes to the long and difficult studies requisite to form a Kavisvara. Amongst the many subjects which a Carana had to master before he could hope for fame, there was, besides works on grammar. rhetoric and history, a knowledge of the six bhasas, and though this knowledge in many cases was nothing more than an empty show, yet the fact that it was considered an indispensable qualification for a Carana, is testimony to the encyclopædic character of the learning a Carana was expected to possess. No wonder, then, if many of the productions of these Caranas are literary masterpieces of the highest value.

Bardic composition is, in general, of a very elaborate kind. Prosody is always exceptionally correct, and none of the artificial devices which are thought to make poetry more attractive is ever neglected. One of these devices, the most charac-

teristic, indeed, in Dingala poetry, so that it has become almost a rule in it, is the *bensaga*, and it consists in forming verses the first and last words in which begin by the same consonant.

गढपति मिल़े उजेणागढ
राजा जसौ रतन्न ।
राम लक्खमण राठवड़
किर दुरजोध करन्न ॥

Another common device is the one called *anuprasa*, which means internal rhyme, as distinguished from Mohara, or final rhyme, and whereof many examples may be quoted:

सिल्लि झिल्लि किङ्कर झरोखा के नगीच नीच ।

It has been said that, of the two languages used by the bards, Dingala and Pingala, the former is the more suited for heroic or warlike subjects, and the latter for amorous topics, and this is true to a certain extent. Dingala, with its richness in cerebral consonants, sounds much more harsh and masculine to the ear, than the comparatively effeminate Pingala, in which dentals have a prevalence over cerebrals. But this should not be taken to mean that Dingala is incapable of musicality and unfit to represent tender sentiments. Take the following gita verses as an example:

वण चौ तरफ घटा घुमसारै । केकी मसत होय कोहौकारै ।
सुजल अथाह फैलियौ सारै । पण आली कद पीव पधारै ॥
उभ्भट जीव लग रहौ उदासौ । व्याप अंत उर वाढ व्यथा सौ ।
देखूं वाट एरी सुण दासौ । आ कह री वालम कद आसौ ॥
निरख रहूं इक टक नैणां सूं । बौहौ मनवार करूं बैणा सूं ।

"The clouds densely assemble in the four directions and the intoxicated peacocks utter their cries. Deep torrents of water have (already) spread everywhere, but, tell me, my friend, when will my beloved come? My soul is upset and I have grown disheartened, and the rain has penetrated into my heart in the form of some (terrible) pain. I am watching the way from where he is to come; listen to me, my maid; tell me when will my beloved come? (When he will come) I will keep gazing (at him all time) with my eyes fixed (on his face) and I will make many entreaties to him in (sweet) words, (so that he will never leave me again)". The subject is evidently a description of the anxiety of a Virahini on seeing the rainy season set in, whilst her husband is still away.

To give an illustration of the Virarasa, that is, of the heroic style, for which Dingala is so famous, I cannot do better than quote an extract from the Asiati Ahaba, a poem on the great European war now in progress, written by Carana Kisor Dan of Jodhpore. The subject of the extract is the heroic resistance offered by the Belgians to the German invaders, and it is interesting to see how Western things appear to the eyes of the living bard of Rajputana. He knew that there are neither elephants nor armoured horses in the present European war, but he could not possibly think of a great battle without them. Here is the passage in question:

दूहौ

वेलजिय जुध वीर वर । लग्गा आभ लड़ंत ।
धर अंबर धूंवै ढकी । झालां आग झड़ंत ॥

छंद त्रोटक

झड़ आग दमंग गयंद झड़ै । पखरैत पटैत उलट्ट पड़ै ।
चलचित्त अजांण चुकै चटकी । नभ जांण कुलट्ट खिसी नट की ॥
अध ऊंघ गिरंदर बंदर ज्यों । खिस आच कुलाच पड़ै धर ज्यों ।
वढ वेग भड़ां कर तेग वहै । पड़ मुंड रकेब सुं रुंड रहै ॥
धजराज समेत ढहै धरणी । विध ओपम तेण इसी वरणी ।
धड़ केत तुरंग समेत धरा । पड़ियौ नभ छूंत दुडंद करा ॥
कर तेग कढे केई वीर वढै । चितधीर उमीर उमंग चढै ।
कल तोप कड़क्क धड़क्क धरा । बहरक्क फरक्क वसू बिथरा ॥

"In the Belgian field of war, the egregious heroes fight (standing so boldly that their heads seem to touch) the sky. Earth and sky are covered by smoke and fire comes down in showers from the blaze (of the guns). Fire showers, and its mere sparks (are so fierce that, on being hit by them) elephants drop down (dead), and armoured horses and champions fall reverse. (So helplessly they fall), as acrobats who on the music suddenly coming to a stop, drop down confused from the air, head foremost; or as monkeys which, half-overtaken by sleep, loosen the grasp of their hands and tumble down from a rock to the earth. With increasing excitement, the warriors go on dealing blows with their swords in their hands; heads drop off, and headless bodies remain on saddle, their feet entangled in the stirrups, till at last they fall to the ground together with the horses. Now, this is the comparison I give of them: they look to me like the headless body of (the demon) Ketu falling to the earth along with his horse, on being brought down from the sky by the hand of the sun. There you see

some heroes advancing with their naked swords in their hands: whilst the steady-minded emirs are transported with the joy (of the battle). The machine guns make the earth rattle and clatter, and the wavering flags spread on the ground.''

From the above example of poetry of recent composition, one might possibly be induced to think that the bardic activity continues as lively as ever. Nothing can be a greater mistake. The bard of Jodhpur who celebrates the events in the modern European struggle is a rare exception. Now, Jodhpur has been from the very beginning a cradle of bards; only one year ago it could boast of a Carana, the late Kaviraja Murari Dan, who was reputed the most learned bard in Rajputana. But he too was rather a scholar than a professional bard, and his most famous work, the Jaswant Jasobhusan, is a work on rhetoric. The fact is that professional bards have grown rarer and rarer in recent years: their sons have steadily taken to different pursuits, and are not initiated in the learning of their fathers. The reasons for this decline of bardic activity are two-fold. First, bards are no more cherished and patronized by the chiefs as they were in former times, and their verses are no more rewarded with generous and princely grants. The *lakhpasao* or donation of a lakh of rupees, which was common enough in former times, has become a mere tradition of bygone ages. Secondly, there has been in modern times an absolute absence of materials for bardic songs, that is, of warlike deeds, which are the chief, and, we may say, the only source of inspiration of the bards. The outbreak of the great European war must have been greeted with the utmost enthusiasm by the Carana Kisor Dan, who at once started his Asiati Ahab. The poetical genius was not extinct in him, but only waited for an opportunity to reveal itself, and the departure of Maharaja Sir Pratab Singh and Maharaja Sumer Singh for the theatre of the war gave him a splendid opportunity of which he readily availed himself.

Let me now turn to the prose chronicles. Under this term, I include all kinds of historical works in prose, for which in Marwari we have a great number of terms such as Khyata, Vata, Vigata, Vamsavali, Judhiya, which exactly specify each of them. Taken together, these prose works form a rich literature, the interest of which is chiefly historical. Since these works have no literary claim and are not meant for publicity, they are, as might be expected, much more faithful and reliable sources of history than bardic poems. They are real and actual chronicles, written with no other aim in view than a faithful record of facts, and their revelation is destined to destroy for ever the unjust blame that India never possessed a historical genius. The precise period when these chronicles first began to be composed cannot be ascertained with preci-

sion, till they are all explored; but from the materials Dr. Tessitori has examined in Jodhpur, it seems that, in that State at least, they were started about the end of the fifteenth century. This is to be taken to refer to regular and complete chronicles, but it is certain that genealogies were reduced to writing and traditions were orally preserved from long before that time. When regular chronicles began to be composed, they were incorporated with genealogies and oral traditions so as to form a complete and connected work starting *ab origine.* It follows that in the chronicles that start from the very origin of the race, with which they deal, we have two parts: a traditional one from the earliest ages to the end of the fifteenth century in which historical facts have been altered and dates are more or less incorrect; and an historical one, which is contemporary with the facts related and therefore accurate and reliable. One of the beauties of these chronicles is their simplicity and impartiality. Most of them were composed privately, and chiefly by magistrates and clerks of the State, Pancalas and Muhnots. The most conspicuous example is the Khyata or chronicle of Muhnot Neusi, formerly Hakim at Malarno, and then minister to Maharaja Jasvant Singh of Jodhpur from A.D. 1658 to 1667. It embodies the historical traditions of all the Rajput races, and was composed, partly from conversations of the author with the people of the different States, and partly from written documents that were available to him. In each case, the author makes it a point to cite his source of information, and the account is in all cases so impartial as to be beyond suspicion. I have mentioned but one example; but there are dozens and dozens of other Khyatas, which are not second to it in importance or accuracy. They are mostly found written in huge volumes, sometimes in the form of a leather-bound register, sometimes in the shape of a vahi or Marwari account book, and are preserved with great care by their possessors. In the particular case of Jodhpur, it was in the seventeenth century, during the reign of Jasvant Singh the First, that this chronological literature reached its climax. Of his reign we have so many documents, that from them we can reconstruct the history of the period with the greatest accuracy and minuteness. At that time, the Marwar State was a jagir of the empire of Shah Jahan, and the very powerful Jasvant Singh took a prominent part in the struggles that led to the succession of Aurangzeb. From this point of view, the Marwari chronicles of the period reflect also the history of the Empire. Some of these volumes of Khyatas do not contain connected chronicles, but only miscellaneous accounts referring to different subjects of an historical character. To give an example of the many-sidedness of the information supplied, Dr. Tessitori has drawn up for me a list of the subjects in one vahi belonging to

Carana Ganes Danji of Jodhpur, son of the late Kaviraja Murari Dan.

(1) An account of the Khavariya Rathors who under the title of Ravats ruled in Khavar, having first Nilmo for their capital, and afterwards Girab.

(2) A genealogical list of the Rathor kings of Bikaner.

(3) A history of the Rathors from the earliest times to Maharaja Ajit Singh, the son and successor of Jasvant Singh the First of Jodhpur.

(4) Genealogies of the Rathor branches that ruled at Bikaner, Idar and Khiavaza.

(5) Miscellaneous historical information beginning with some old traditions of the Rathors, and containing particulars referring to Karamsi Jodhavat, Pabu Dhadhalot, Niba Jodhavat, Rao Rinamal and others, and indulging specially on the war between Rao Malde of Jodhpur and Jetsi of Bikaner and on some events which happened during the sixteenth century of the Samvat Era, as well as on Akbar, on the genealogies of the rulers of Dilli, from Tuvar Dasarth to Aurangzeb.

(6) A genealogical sketch of the Sisodiyas of Udaipur, of the Kachvatras of Amber, and of the Devaras of Sirohi.

(7) Another genealogical sketch of the Sisodiyas.

(8) Genealogies of the Bhatis of Jesalmer.

(9) An historical sketch of the Budelas.

(10) A genealogy of the Hadas of Budi.

(11) A biographical sketch of Chohan Kanarde, ruler of Jater (thirteenth century).

(12) A collection of the traditions concerning the foundation of the principal strongholds and capitals of Rajputana, such as Mandor, Ajmer, Chitor, Jesalmer, Jator, and Sivana.

(13) A list of the temples, ponds, tanks and wells of the city of Jodhpur.

This list does not exhaust the contents of the vahi, which contains many other items, not less important than those which have been cited. Most of these items were all compiled under the reign of Jasvant Singh the First.

I trust what I have said makes it abundantly clear that the Bardic and Historical Survey of Rajputana is a work that is not only important, but is also urgent and necessary. I have shown that it is important both from the literary and the historical point of view. Its historical importance is clear, when one thinks that all present histories of the Mahomedan period of India are compiled almost exclusively from Mahomedan sources, which do not always assign due weight to the influence of Hindu culture and civilization. It is obvious that to write an impartial history of India, Hindu sources should be taken into account at least in the same degree as Mahomedan sources. Fortunately, for the Rajput States, materials are abundant. It would be unjust to neglect them, and allow

them to be lost or destroyed; the acquisitions to history that can be expected as the result of the exploration of these materials can never be overrated. The brave Rajput races, who are at this moment devotedly fighting for the cause of the Empire, are justly entitled to this much at least of consideration, that the history of their glorious past be investigated and preserved.

There is only one other topic to which I shall invite your attention before I bring this address to a close—a subject of striking interest, not merely to the scholarly investigator but also to the practical administrator—I mean the system of jurisprudence which regulates the lives of our Mahomedan fellow subjects. It has always seemed to me inexplicable why our contribution to the cause of promotion of Arabic learning, so rich in diverse departments, should be exceedingly meagre and fragmentary in the domain of Mahomedan law. Our founder, eminent as a jurist as well as an orientalist, published in 1792 a translation of Al Sirajiyah, a treatise on the Moslem law of inheritance, with a commentary mainly based on the Sharifiyah; it is fruitless to speculate in what other direction his resources might have been employed but for his premature death two years later. Nothing substantial was added to the facilities for the study of Mahomedan Law by the members of our Society for more than forty years. In 1835, the battle which had long raged between the Anglicists and the Orientalists, in respect of the language best adapted as the medium of instruction for the people of this country, came to a close with the overthrow of the latter. The consequence was that the Government adopted what now seems an obviously illogical attitude, namely, that all oriental works then in hand should be discontinued, and a resolution was issued which explicitly directed that the sheets already printed should be sold as waste paper. The works thus abandoned included the celebrated Fatawa Alamgiri, a Digest of Mahomedan Law prepared by the distinguished Jurists of the Emperor Aurangzeb and named, like the Digest of Justinian and the Code of Napoleon, after the monarch to whose genius it owed its initiation. The intervention of the Society saved the printed sheets of this monumental work from ruthless destruction and led to its completion under our auspices. This, together with the Sahraya-ul Islam, which had been published a few years earlier, constitute the sum total of our contribution to the advancement of the study of Mahomedan Law. When we come to examine the work accomplished by scholars outside the pale of the Society, we are met with an equal scarcity of reliable translations of standard works on Moslem Law, as indicated in the opinion expressed by a distinguished Mahomedan Jurist, the Right Hon. Syed Amir Ali. "Neill Baillie's paraphrase of the Fatawa Alamgiri and Hamilton's translation of the Persian rendering of the

Hedaya have been so far the principal works in the English language which give access to lawyers, not sufficiently familiar with Arabic, into the intricacies of the Hanafi Law. The Persian translation of the Hedaya, however, does not, in many cases, correctly represent the Arabic original, as the translators interpolated many of their own interpretations into the rendering; whilst Neill Bailie, in his desire to condense the matter by the omission of important passages and of the authorities on which the Fatawas are based, has created a certain amount of confusion in the apprehension of the principles.'' This complaint, if I may say so without impropriety, is amply justified, and it is hardly creditable to us that we should in this respect come out not even second best when a comparison is instituted between the work accomplished here and elsewhere. To take one illustration, when we look forward to works on the Maliki School of Moslem Law, the foremost place must at once be assigned to *Precis de Jurisprudence Musulmane* by Dr. Nicolas Perron, which was published in six volumes under the patronage of the French Government in Algeria and is a translation of the celebrated work on Maliki Law, the Mukhtasar of Sidi Khalil. But it would be a mistake to suppose that this monumental work stands alone. We have further the *Balance de la loi Musulmane*, a translation by Dr. Perron of the Mizan of Al Sherane, one of the most important works on Moslem Comparative Jurisprudence; the Code Musulmane by Seignette, who furnishes an accurate edition of the Arabic text of the cyclopaedic work of Sidi Khalil with a new translation; the Tuhfat al Hukkam, a work on the duties of Judges, published with text and translation by Houdas and Martel; and the *Droit Musalmane* by Querry, who gives a complete translation of the Sahraya-ul-Islam, the standard text-book on Shia Law. Nothing similar has been attempted here, except the First Steps in Muslim Jurisprudence by Mr. Justice Russel and Dr. Suraworthy, who are also the authors of a valuable work on the law of marriage. In addition to this, we have three valuable works on the Mahomedan Law of Waqf or Religious and Charitable Endowments by Clavel, Adda and Ghalioungini and Mercien; and two special treatises on the Musalman Law of Succession by Luciani and Clavel. I do not refer specifically to general works on Moslem Law, such as those by Zeys, Morand, Sautayra and Cherbonneau, many of which indicate considerable research into the original authorities. If we turn our attention for a moment to countries other than France, we meet with quite a number of important works on the Shafi School of Moslem Law published under the auspices of the Dutch Government for the benefit of their Moslem subjects in Java. Amongst these may be mentioned the Fath-al-Karib and Minhaj-at-Talibin, of which the text and translation were published by Van den Berg; the result of his labours has been

just made accessible to English readers by Judge Howard of Singapore. We have also an excellent edition of Abu Shuja with translation by Keijzer. These, taken along with the treatises of Juynboll, Kenu-de Hoogenwoerd and Snouck Hungrouje must be deemed a quite respectable contribution of Dutch scholars to the study of Shafi Law. I shall not detain you with an enumeration of the contributions to the study of Islamic legal literature by Germany, Russia, and even Sweden, through the labours of scholars like Von Tornauw, Goldziher, Sachau, Kohler, Nauphal and D'Ohosson, all indispensable to the serious student of the various schools of Mahomedan Law investigated by them. I confess to a feeling of humiliation when I contrast the solid performance of the scholars mentioned, with the exceedingly little contributed by investigators in this country. Dazzled by the brilliant work accomplished elsewhere, which will for ever remain a standing testimony to the scholarship of those investigators and the munificence of their respective Governments, well may an eminent Indian Moslem express the hope that "the British Indian Government, in the midst of its executive and administrative preoccupations, may find time to take into consideration that most important question, the administration of the Musulman Law, which has supplied the Mahomedans of India with a substantial cause of grievance, together with the expediency of following the example of the French Government in Algeria and providing the Indian Judiciary with authorized translations of the Fatawai Alamgiri, the Radd-ul-Muktar, the Mabsut and other works of like standing." It is our paramount duty as a learned Society to take the lead in the initiation and accomplishment of this great undertaking, to enlist the sympathy and co-operation of scholars, and to secure the necessary financial assistance from an enlightened Government.

I have detained you with my address much longer than I anticipated; but I felt that it was desirable not only to review the work accomplished during the last twelve months, but also to emphasise attractive fields of investigation. Our illustrious founder observed, with reference to the Society, the interests of which were nearest to his heart, that "it will flourish if Naturalists, Chemists, Antiquaries, Philologers and men of Science in different parts of Asia will commit their observations to writing and send them to the Asiatic Society at Calcutta; it will languish, if such communications shall be long intermitted, and it will die away if they shall entirely cease." The apprehension has been expressed in some quarters that during the second century of its existence, the Society shows visible signs of decay. I feel confident that this alarmist view is not well-founded. The field of our investigation is boundless and inexhaustible, and notwithstanding the assiduous labours of scholars of bygone generations, the patient investigator of the

present day has, at his disposal, unexplored territories, vast in extent and rich with treasures, sufficient to justify the devotion of bands of scholars for centuries yet unborn.

The President announced the election of Officers and Members of Council for the year 1915 to be as follows : —

President.

Lieut.-Col. Sir Leonard Rogers, Kt., C.I.E., M.D., B.S., F.R.C.S., F.A.S.B., I.M.S.

Vice-Presidents.

The Hon Justice Sir Asutosh Mukhopadhyaya, Kt., C.S.I., D.L., D.Sc., F.R.S.E., F.R.A.S. F.A.S.B.
Mahamahopadhyaya Haraprasad Shastri, C.I.E., M.A., F.A.S.B.,
H. H. Hayden, Esq., D.Sc., C.I.E., B.A., B.E., B.A.I., F.G.S., F.A.S.B.

N. Annandale, Esq., D.Sc., C.M.Z.S., F.L.S., F.A S.B.

Secretary and Treasurer.

General Secretary :—F. H. Gravely, Esq., M.Sc.
Treasurer :—R. D. Metha, Esq., C.I.E.

Additional Secretaries.

Philological Secretary :—A. Al-Ma'mun Suhrawardy, Esq., Iftikharul Millat, M.A., Ph.D., Bar.-at-Law.
Natural History Secretaries— { Biology—P. J. Bruhl, Esq., D.Sc., F.A.S.B. Physical Science—E. P. Harrison, Esq., Ph.D. }
Anthropological Secretary :—N. Annandale, Esq., D.Sc., C.M.Z.S., F.L.S., F.A.S.B.
Joint Philological Secretary :—Mahamahopadhyayya Satis Chandra Vidyabhusana, M.A., Ph.D., F.A.S.B.
Medical Secretary :—W. C. Hossack, Esq., M.D., D.P.H.
Honorary Librarian :—S. W. Kemp, Esq., B.A., F.A.S.B.

Other Members of Council.

C. S. Middlemiss, Esq., B.A., F.G.S., F.A.S.B.
W. A. K. Christie, Esq., Ph.D.

W. Kirkpatrick, Esq.
Major D. McCay, M.B., I.M.S.
H. R. James, Esq., M.A.
The Hon'ble Mr. Justice J. G. Woodroffe, M.A., B.C.L.

The President also announced the election of the Fellows to be as follows :—

Major E. D. W. Greig, C.I.E., M.B., I.M.S.
G. H. Tipper, Esq., M.A., F.G.S.
D. B. Spooner, Esq , Ph.D.
H. H. Haines, Esq., F.C.S., F.L.S.

The newly-elected President then took the chair and the meeting was resolved into the Ordinary General Meeting for the election of members.

The following gentlemen were balloted for and elected as Ordinary Members :—

Dr. C. P. Segard, Physical Adviser to the Government of Bengal, Medical College, proposed by Dewan Bahadur Hiralal Bose, seconded by Dr. P. J. Bruhl ; Maulavi Hafiz Ahmadali Khan, Zīmandar, Superintendent, Rampur State Library, proposed by Maulvi M. Hidayet Hosain, seconded by Dr. A. Suhrawardy.

The President announced that Mr. E. Brunetti has been recommended by the Council for election as an Associate member on account of his excellent work on Indian Diptera, at the next Ordinary General Meeting of the Society.

The following exhibitions were shown :—

1. *Some Insects from the Darjeeling District.—By* H. E. Lord Carmichael.

2. *Indian Boring Sponges and their Independent Phase.—Exhibited by* N. Annandale, Esq., D.Sc.

3. *Drawings of new or rare species of Crabs from the Chilka Lake.—Exhibited by* S. W. Kemp, Esq., B.A.

4. *Continuous and Discontinuous Variation illustrated by Indian Butterflies.—Exhibited by* F. H. Gravely, Esq., M.Sc.

5. *A Restoration of an Anthropoid Jaw.—Exhibited by* G. H. Pilgrim, Esq., D.Sc.

6. *Some Photographs of Statues of the Buddhas.—Exhibited by* N. Annandale, Esq., D.Sc.

7. *Some Mahommedan Manuscripts, Paintings, etc.—Exhibited by* Dr. A. Suhrawardy, Ph.D.

8. *The Oldest Palm-Leaf Manuscript in Bengali Character.—Exhibited by* MAHAMAHOPADHYAYA HARAPRASAD SHASTRI.

9. *Some Indian Antiquities.—Exhibited by* DR. SATIS CHANDRA VIDYABHUSANA.

10. *A Copper Plate Grant and an Impression of an Inscription.—Exhibited by* BABU RAKHAL DAS BANERJI.

11. *Some Micro-Chemical Apparatus.—Exhibited by* W. A. R. CHRISTIE, ESQ., PH.D.

12. *The Indian Medicinal Leech.—Exhibited by* DR. N. ANNANDALE.

The Meeting was then closed.

LIST OF MEMBERS

OF THE

ASIATIC SOCIETY OF BENGAL.

ON THE 31ST DECEMBER, 1914.

LIST OF OFFICERS AND MEMBERS OF COUNCIL OF THE ASIATIC SOCIETY OF BENGAL FOR THE YEAR 1914.

President :

His Excellency the Right Hon'ble Thomas David Baron Carmichael of Skirling, G.C.I.E., K.C.M.G.

Vice-Presidents :

The Hon. Justice Sir Asutosh Mukhopadhyaya, Kt., C.S.I., D.L., D.Sc., F.R.S.E., F.R.A.S., F.A.S.B.

Mahāmahopādhyāya Haraprasād Śāstrī, C.I.E., M.A., F.A.S.B.

Lt.-Col. Sir Leonard Rogers, Kt., C.I.E., M.D., B.S., F.R.C.P., F.R.C.S., F.A.S.B., I.M.S.

Col. Sir S. G. Burrard, K.C.S.I., C.S.I., R.E., F.R.S.

Secretary and Treasurer.

General Secretary :—Major C. L. Peart, I.A., succeeded by F. H. Gravely, Esq., M.Sc.

Treasurer :—R. D. Mehta, Esq., C.I.E.

Additional Secretaries.

Philological Secretary :—Major C. L. Peart, I.A., succeeded by Dr. A. Suhrawardy.

Natural History Secretaries.
- Biology :—N. Annandale, Esq., D.Sc., C.M.Z.S., F.L.S., F.A.S.B., succeeded by P. J. Bruhl, Esq., Ph.D.
- Physical Science :—W. A. K. Christie, Esq., B.Sc., Ph D., succeeded by E. P. Harrison, Esq., Ph.D., F.A.S.B.

Anthropological Secretary :—J. Coggin Brown, Esq., M.Sc., F.G.S., succeeded by N. Annandale, Esq., D.Sc., C.M.Z.S., F.L.S., F.A.S.B.

Joint Philological Secretary :—Mahāmahopādhyāya Satīs Chandra Vidyābhūṣana, M.A., Ph.D., F.A.S.B.

Medical Secretary :—Capt. C. A. Godson, I.M.S.

Honorary Librarian :—S. W. Kemp, Esq., B.A., F.A.S.B.

Other Members of Council.

W. K. Dods, Esq.

W. C. Hossack, Esq., M.D., D.P.H.

D. B. Spooner, Esq., B.A., Ph.D.

G. R. Clarke, Esq., I.C.S.

W. Kirkpatrick, Esq.

LIST OF ORDINARY MEMBERS.

R. = Resident. N.R. = Non-Resident. A. = Absent. L.M. = Life Member.
F.M. = Foreign Member.

An Asterisk is prefixed to the names of the Fellows of the Society.

N.B.—Members who have changed their residence since the list was drawn up are requested to give intimation of such a change to the Honorary General Secretary, in order that the necessary alteration may be made in the subsequent edition. Errors or omissions in the following list should also be communicated to the Honorary General Secretary.

Members who are about to leave India and do not intend to return are particularly requested to notify to the Honorary General Secretary whether it is their desire to continue Members of the Society; otherwise, in accordance with Rule 40 of the rules, their names will be removed from the list at the expiration of three years from the time of their leaving India.

Date of Election.		
1907 April 3.	N.R.	Abdul Ali, Abul Faiz Muhammad, M.A., Deputy Magistrate. *Netrokona, Mymensingh.*
1909 Mar. 3.	N.R.	Abdul Latif, Syed, Deputy Magistrate. *Barisal.*
1894 Sept. 27.	L.M.	Abdul Wali, Maulavi. 23, *European Asylum Lane, Calcutta.*
1912 Aug. 7.	N.R	Abdulla-ul-Musawy, Syed, B.A., Zemindar. *Bohar, Burdwan.*
1909 July 7.	R.	Abdur Rahim, Maulavi. 51, *Taltolla Lane, Calcutta.*
1895 May 1.	R.	Abdus Salam, Maulavi, M.A., Presidency Magistrate. *Calcutta.*
1903 April 1.	N.R.	Abul Aâs, Maulavi Sayid, Raees and Zemindar. *Langar Toli, Bankipore.*
1904 Sept. 28.	N.R.	Ahmad Hasain Khan, Munshi. *Jhelum.*
1911 April 5.	N.R.	Ahmad Husain, Nawab, *Khan Bahadur. Rais of Pargawan, Partabgarh, Dist. Oudh.*
1903 Oct. 28.	R.	Allan, Alexander Smith, M.B. 17 & 18 *Esplanade Mansions, Calcutta.*
1913 Nov. 5.	N.R.	Aminullah, Maulvi, Pleader. *Ghazipore.*
1893 Aug. 31.	N.R.	Anderson, Lieut.-Col. Adam Rivers Steele, B.A., M.B., D.P.H., C.M.Z.S., I.M.S. *Ramna, Dacca.*
1912 July 3.	N.R.	Andrews, Egbert Arthur, B.A. *Tocklai Experimental Station, Cinnenara P.O., Jorhat, Assam.*

Date of Election.		
1904 Sept. 28.	R.	*Annandale, Nelson, D.Sc., C.M.Z.S., F.A.S.B., Superintendent, Indian Museum. *Calcutta.*
1914 April 1	N.R.	Ansari Amir Ahmad, B.A. *Begum Cothee, Meerut, U.P.*
1910 Apl. 6.	N.R.	Ascoli, Frank David, I.C.S. *Dacca.*
1909 May 5.	R.	Ashgar, A. A., Barrister-at-Law. 8, *European Asylum Lane, Calcutta.*
1911 May 3.	A.	Atkinson, Albert Charles. *Europe* (*c o La Martiniere College, Calcutta*).
1904 July 6.	N.R.	Aulad Hasan, Sayid, *Khan Bahadur*, Inspector of Registration. *Dacca.*
1909 May 5.	R.	Azad, Maulavi Abul-Kalam Mohyuddin Ahmad. 13, *McLeod Street, Calcutta.*
1914 Mar. 4	L.M	Bacat, Mons. I. 31, *Quai d'Orsay, Paris.*
1870 Feb. 2.	L.M.	Baden-Powell, Baden Henry, M.A., C.I.E. *Ferlys Lodge, 29, Banbury Road, Oxford, England.*
1891 Mar. 4.	F.M.	Baillie, The Hon. Sir Duncan Colvin, K.C.S.I., I.C.S. 9, *Pall Mall, London.*
1909 Feb. 3.	N.R.	Banerji, Charu Deb, B.A., LL.B. *Allahabad.*
1910 Dec. 7.	N.R.	Banerji, Devendra Kumar. *Dacca College, Dacca.*
1905 Mar. 1.	R.	Banerji, Muralidhar. *Sanskrit College, Calcutta.*
1907 Jan. 2.	R.	Banerji, Rakhal Das, M.A. 45/4, *Simla Street, Calcutta.*
1896 Mar. 4.	N.R.	Banerji, Satish Chandra, M.A., LL.D., Advocate, High Court. *Allahabad.*
1914 Feb. 4	R	Banerji, Surendra Chandra. 30, *Sastitola Road, Narikeldanga.*
1869 Dec. 1.	L.M.	Barker, Robert Arnold, M.D., F.G.S. *Thorncroft, Horndean Road, Emsworth, Hants, England.*
1885 Nov. 4.	R.	Barman, Damodar Das. 55, *Clive Street, Calcutta.*
1898 Mar. 2.	N.R.	Barnes, Herbert Charles, M.A., I.C.S., Deputy Commissioner, Naga Hills. *Kohima, Assam.*
1908 Nov. 4.	N.R.	Barnes, James Hector, B.Sc., F.I.C., F.C.S., Principal, Punjab Agricultural College. *Lyallpur.*
1903 Feb. 4.	N.R.	Batra, Bhawani Das, *Rai Bahadur*, M.A., *Lyallpur, Punjab.*
1909 July 7.	N.R.	Bazuz, Rangnath Khunraj. *Girgaon, Bombay.*
1895 July 3.	L.M.	Beatson-Bell, The Hon. Mr. Nicholas Dodd, B.A., C.I.E., I.C.S. *Calcutta.*
1907 Feb. 6.	N.R.	Bell, Charles Alfred, I.C.S. *Gangtok, Sikkim.*
1909 April 7.	R.	Bentley, Charles A., M.B., D.P.H. *Dum Dum, 24-Parganas.*
1876 Nov. 15.	F.M.	*Beveridge, Henry, F.A.S.B., I.C.S. (retired). *Pitfold, Shottermill, Haslemere, Surrey, England.*

Date of Election.		
1913 April 2.	N.R.	Bhatnagar, R. S., Civil Judge, *Shahpura, Rajputana.*
1908 Nov. 4.	N.R.	Bhattacharji, Bisvesvar, Sub-Divisional Officer, *Katwa, Burdwan.*
1910 April 6.	N.R.	Bhattacharji, Ramakanta. *Madhupur.*
1909 July 7.	R.	Bhattacharji, Shib Nath, M.B. 17, *Mohanbagan Road, Calcutta.*
1914 Nov. 4.	N.R.	Bhattacharji, Vireshwar. *Rawalpindi.*
1911 April 5.	R.	Bion, H. S., B.SC., F.G.S., Assistant Superintendent, Geological Survey of India. *Calcutta.*
1910 May 4.	N.R.	Bishop, T. H., M.R.C.S., L.R.C.S., D.P.H. *Paksey, Pabna Dist.*
1893 Feb. 1.	L.M.	Bodding, Revd. P. O. *Dumka, Sonthal Parganas.*
1912 Oct. 30.	A.	Bolton, H. O. *Europe (c/o Messrs. Graham & Co., Calcutta).*
1912 July 3.	N.R.	Bomford, Capt. Trevor Lawrence, I.M.S., M.B., B.S., M.R.C.S., L.R.C.P. *Europe (c/o Rev. T. Bomford, C.M.S. House, Peshawar).*
1895 July 3.	N.R.	Bonham-Carter, Norman, I.C.S. *Dacca.*
1898 Feb. 2.	R.	Bose, Amrita Lal, Dramatist. 9-2, *Ram Chandra Maitra's Lane, Calcutta.*
1908 June 3.	R.	Bose, Hira Lall, *Dewan Bahadur,* L.M.S. 25/2, *Indian Mirror Street, Calcutta.*
1895 Mar. 6.	A.	*Bose, Jagadis Chandra, C.S.I., M.A., D.SC., C.I.E., F.A.S.B. *Europe (c/o Presidency College, Calcutta).*
1914 Nov. 4.	R.	Bose, Thakur Birendranath. 59/1, *Patuatola Lane, Calcutta.*
1910 July 6.	N.R.	Botham, Arthur William, I.C.S. *Shillong.*
1911 Nov. 1.	N.R.	Boyle, Lieut. Cecil Alexander, 11th King Edward's Lancers, Cavalry Lines, The Kurram Valley Militia. *Parachinar, Kurram Valley, N.W.F.P.*
1908 Jan. 1.	R.	Brahmachari, Upendra Nath, M.A., M.D. 19, *Grey Street, Calcutta.*
1913 Aug. 6.	N.R.	Brown, C. J. *Canning College, Lucknow.*
1906 July 4.	R.	Brown, Lieut.-Col. Edwin Harold, M.D., I.M.S. (retired). 4, *Harrington Street, Calcutta.*
1907 July 3.	R.	Brown, John Coggin, M.SC., F.G.S., F.C.S., Assistant Superintendent, Geological Survey of India. *Calcutta.*
1909 Oct. 6.	R.	Brown, Percy, A.R.C.A. *Government School of Art, Calcutta.*
1909 Oct. 6.	R.	*Brühl, Paul Johannes, PH.D., F.C.S., F.A.S.B. *Madrassa, Calcutta.*
1901 Sept. 25.	R.	Buchanan, Lieut.-Col. Walter James, I.M.S. *United Service Club, Calcutta.*
1901 June 5.	F.M.	*Burkill, Isaac Henry, M.A., F.A.S.B. *Botanical Gardens, Singapur.*
1896 Jan. 8.	F.M.	Burn, The Hon. Mr. Richard, I.C.S. 54, *Parliament Street, London, S.W.*

Date of Election.		
1913 Jan. 1.	R.	Burrard, Col. Sir S. G., K.C.S.I., C.S.I., F.R.S., Surveyor General of India. 13, *Wood Street, Calcutta.*
1913 Nov. 5.	R.	Burton, R. C., Assistant Superintendent, Geological Survey of India. *Calcutta.*
1900 May 2.	N.R.	Butcher, Flora, M.D. *Lohaghat, Almora Dist.*
1906 Dec. 5.	R.	Caddy, Adrian, M.D. (Lond.), F.R.C.S. (Eng.), D.P.H., M.R.C.P.S. (Lond.). 2-2, *Harrington Street, Calcutta.*
1913 Apl. 2.	R.	Calder, Charles Cumming. *Royal Botanic Gardens, Sibpur, Howrah.*
1907 Apl. 3.	R.	Calvert, Lieut.-Col. John Telfer, M.B., M.R.C.P., I.M.S. *Medical College, Calcutta.*
1907 Mar. 6.	L.M.	Cama, Camaji Byramji Navroji, B.A., LL.B., I.C.S. *Raipur.*
1901 Mar. 6.	N.R.	Campbell, William Edgar Marmaduke, I.C.S. *Mirzapur, U.P.*
1895 July 3.	N.R.	Carlyle, The Hon. Sir Robert Warrand, K.C.S.I., C.I.E., I.C.S., Revenue and Agriculture and P.W.D. Member, Government of India. *Simla.*
1912 Mar. 6.	R.	Carmichael, His Excellency the Right Hon'ble Thomas David Baron, of Skirling, G.C.I.E., K.C.M.G., Governor of Bengal. *Calcutta.*
1910 May 4.	N.R.	Carter, Capt. Robert Markham, I.M.S. *Bombay.*
1905 May 3.	R.	Chakravarti, Dwarkanath, M.A., B.L., Vakil, High Court. *Calcutta.*
1890 June 4.	R.	*Chakravarti, Rai Monmohan, Bahadur, M.A., B.L., F.A.S.B., Deputy Magistrate. 14, *Palmers Bazar Road, Entally, Calcutta.*
1909 Mar. 3.	R.	Chakravarti, Nilmani, M.A. *Presidency College, Calcutta.*
1905 July 5.	N.R.	Chakravarti, Vanamali. *Cotton College, Gauhati.*
1906 Jan. 3.	R.	Chapman, John Alexander, Librarian, Imperial Library. *Calcutta.*
1908 Feb. 5.	R.	Chatterjee, Gopal Chandra, M.B. *Medical College, Calcutta.*
1911 June 7.	R.	Chatterjee, Karuna Kumar, F.R.C.S. 74, *Dharamtola Street, Calcutta.*
1909 Mar. 3.	R.	Chatterjee, Manmatha Nath, M.B. 295/1, *Upper Circular Road, Calcutta.*
1907 Sept. 25.	R.	Chatterjee, Promode Prakas. 8, *Dixon Lane, Calcutta.*
1902 Aug. 27.	R.	Chaudhuri, The Hon. Mr. Justice Ashutosh. 47, *Old Ballygunge, Calcutta.*
1893 Sept. 28.	R.	Chaudhuri, Banawari Lal, B.A., D.Sc. (Edin.), F.R.S.E., F.L.S. (Lond.). 120, *Lower Circular Road, Calcutta.*

Date of Election.		
1911 Mar. 1.	N.R.	Chaudhuri, Charu Chandra, Rai Bahadur, Zemindar, Sherpur Town. *Mymensingh Dist.*
1914 April 1.	R.	Chaudhuri, Gopal Das. 32, *Beadon Row, Calcutta.*
1913 June 4.	R.	Chaudhuri, P., Bar.-at-Law. 2, *Bright Street, Ballygunge, Calcutta.*
1912 Aug. 7.	N.R.	Chetty, P. S. Ramulu. 5, *Strotton Muthia, Mudelly Street, Georgetown, Madras.*
1907 July 3.	A.	Christie, William Alexander Kynock, B.Sc., Ph.D. *Europe (c/o Geological Survey of India, Calcutta).*
1909 Nov. 3	N.R.	*Christophers, Major Samuel Richmond, M.B., F.A.S.B., I.M.S. *Research Laboratory, Kasauli.*
1902 April 2.	R.	Chunder, Rajchunder, Attorney-at-Law. 2, *Old Post Office Street, Calcutta.*
1906 Nov. 7.	R.	Clarke, Geoffrey Roth, I.C.S., Deputy Director General of Post Offices in India. *Calcutta.*
1906 July 4.	A.	Connor, Captain Frank Powell, F.R.C.S. (Eng.), L.R.C.P. (Lond.), I.M.S. *Europe (c/o India Office, London).*
1908 Nov. 4.	N.R.	Cook, Capt. Lewis, I.M.S. *Puri.*
1907 July 3.	R.	Cotter, Gerald de Purcell, Assistant Superintendent, Geological Survey of India. *Calcutta.*
1908 Jan. 1.	R.	Crake, Dr. Herbert Milverton, Health Officer. 15, *Loudon Street, Calcutta.*
1876 Mar. 1.	F.M.	Crawfurd, James, B.A., I.C.S. (retired). *Thornwood, Uddington, Lanarkshire, Scotland.*
1887 Aug. 25.	R.	Criper, William Risdon, F.C.S., F.I.C., A.R.S.M. *Konnagar, E.I.R.*
1895 July 3.	R.	Cumming, The Hon. Mr. John Ghest, C.I.E., I.C.S. *Chief Secy., Govt. of Bengal, Calcutta.*
1873 Dec. 3.	F.M.	Dames, Mansel Longworth, I.C.S. (retired). *Ventnor, Wodeland Road, Guildford, Surrey, England.*
1896 Mar. 4.	R.	Das-Gupta, Jogendra Nath, B.A. (Oxon), Barrister-at-Law. *Hughli College, Chinsura.*
1912 April 3.	N.R.	Das, Kasi Nath, Prof. Ravenshawe College. *Cuttack.*
1914 April 1.	R.	Davenport, Alex. W. *Chartered Bank Buildings, Calcutta.*
1910 Jan. 5.	R.	David, David A. 55, *Free School Street, Calcutta.*
1895 Sept. 19.	N.R.	De, Kiran Chandra, B.A., I.C.S. *Dinajpur.*
1906 Dec. 5.	R.	Deare, Lieut.-Col. Benjamin Hobbs, M.R.C.S. (Eng.), L.R.C.P. (Lond.), D.P.H. (Cantab), I.M.S. 14, *Russell Street, Calcutta.*
1899 Aug. 30.	N.R.	Deb, Raja Saccidananda Tribhuban, Feudatory Chief of Bamra. *Deogarh, Bamra.*
1904 Sept. 28.	N.R.	DeCourcy, William Blennerhasset. *Leddelsdale Estate, Naduwatum P.O., Nilgiris.*

Date of Election.		
1912 May 1.	R.	Demetriadi, Stephen. 1 & 2, *Church Lane, Calcutta.*
1906 Dec. 5.	N.R.	Dentith, Arthur William, I.C.S. *Shillong.*
1910 May 4.	L.M.	Dhavle, Sankara Balaji, I.C.S. *Cuttack.*
1912 July 3.	R.	Digby, Everard, B.Sc. (Lond.). 1, *Garstin's Place, Calcutta.*
1907 Oct. 30.	N.R.	Dixit, Pandit Sri Ram, B.A., *Dewan of Banswara, Rajputana.*
1898 Jan. 5.	R.	Dods, William Kane. Agent, Hongkong and Shanghai Banking Corporation. *Calcutta.*
1906 Dec. 5.	N.R.	Donnan, Major William, Indian Army, Examiner of Ordnance Factory Accounts in India. *Lucknow.*
1909 Nov. 3.	N.R.	Donovan, Lieut.-Col. Charles, M.D., I.M.S. *Medical College, Madras.*
1902 July 2.	R.	Doxey, Frederick. 9, *Queen's Park, Ballygunge, Calcutta.*
1909 Aug. 4.	N.R.	Drake-Brockman, Digby Livingstone, I.C.S. *Allahabad.*
1892 Sept. 22.	N.R.	Drury, Lieut.-Col. Francis James, I.M.S. *Ranchi.*
1912 Nov. 6.	N.R.	Dube, Manan. *Tahsildar, Domariagunj, Basti.*
1912 April 3.	A.	Duff-Sutherland-Dunbar, Capt. Sir George, Bart. *Europe (c/o India Office, London).*
1914 Sept. 2.	R.	Dutt, B. C. 172, *Manicktola Street, Calcutta.*
1877 Aug. 30.	R.	Dutt, Kedar Nath. 1, *Sikdarpara Lane, Calcutta.*
1906 Nov. 7.	N.R.	Eadie, Capt. John Inglis. *97th Deccan Infantry (c/o Messrs. Grindlay & Co., Bombay).*
1910 April 6.	N.R.	Ebden, Capt. F. T. P. *73rd Cavalry, Trichinopoly.*
1903 May 6.	A.	Edwards, Walter Noel. *Europe.*
1910 April 6.	R.	Elmes, Dr. Cecil H. 1, *Middleton Row, Calcutta.*
1911 Nov. 1.	R.	Esch, V. J., Architect. *Grand Hotel, Calcutta.*
1904 Aug. 3.	R.	Fermor, Lewis Leigh, A.R.S.M., D.Sc., F.G.S., Superintendent, Geological Survey of India. *Calcutta.*
1908 Sept. 2.	N.R.	Fida Ali, Syed. *Arrah.*
1906 Dec. 5.	R.	Finck, Herman H. G., M.D., Surgeon to the Consulate-General for Germany. 7, *Camac Street, Calcutta.*
1906 Oct. 31.	N.R.	Finlow, Robert Steel, Fibre Expert to the Govt. of Assam. *Dacca.*
1907 Mar. 6.	R.	Firminger, The Ven'ble Walter Kelly, M.A., B.D., F.R.G.S., Archdeacon of Calcutta. *St. John's House, Council House Street, Calcutta.*
1910 Sept. 7.	N.R.	Fortescue, Capt. Archer Irvine, R.A.M.C. *Benares.*

Date of Election.		
1906 Dec. 5.	R.	Foster, Capt. Henry Bertram, I.M.S. *Chinsurah.*
1913 Nov. 5.	R.	Fox, Cyril S., Assistant Superintendent, Geological Survey of India. *Calcutta.*
1910 April 6.	N.R.	Francis, Lieut. Reginald Frankland, Indian Army. *Jullunder, Punjab.*
1910 Nov. 2.	N.R.	Friend-Pereira, Joseph Ernest, B.A., *Madhipura, Bhagalpur.*
1903 Mar. 4.	R.	*Gage, Major Andrew Thomas, M.A., M.B., B.SC., F.L.S., I.M.S. *Royal Bot. Gardens, Calcutta.*
1893 Jan. 11.	N.R.	*Gait, The Hon. Mr. Edward Albert, C.S.I., C.I.E., I.C.S., Member of Council, Bihar and Orissa. *Ranchi.*
1912 Mar. 6.	R.	Ganguli, Manmohan, B.E., District Engineer. 79, *Cornwallis Street, Calcutta.*
1909 Mar. 3.	R.	Ganguli, Matilal, *Rai Bahadur. Currency Office, Calcutta.*
1909 Oct. 7.	R.	Ganguli, Ordhendhu Kumar. 12, *Ganguli's Lane, Calcutta.*
1908 Feb. 5.	N.R.	Gardner-Brown, John Gerald Gardner, M.A., Director, State Education, *Holkar College, Indore.*
1908 Jan. 1.	N.R.	Ghatak, Suresh Chandra, Depy. Magistrate and Depy. Collector. *Dacca.*
1905 July 5.	R.	Ghosh, Amulya Charan, *Vidyabhusana.* 66, *Manicktolla Street, Calcutta.*
1912 Aug. 7.	R.	Ghosh, Atal Behari, M.A., B.L. 59, *Sookea's Street, Calcutta.*
1907 Oct. 30.	A.	Ghosh, Birendra Nath, L.M.S., Medical Practitioner. *Europe* (*c/o War Office, London*).
1912 Mar. 6.	R.	Ghosh, Harinath, M.D., Assistant Surgeon. 15/1a, *Balaram Ghosh Street, Calcutta.*
1905 May 3.	N.R.	Ghosh, Hemendra Prasad, Zemindar and Litterateur. *Prasad Lodge, Changalbha P.O., Jessore.*
1889 Jan. 2.	R.	Ghosh, Jogendra Chandra, M.A., B.L., Pleader. 25, *Hurrish Chunder Mookerjee Road, Bhowanipore, Calcutta.*
1909 Dec. 1.	A.	Ghosh, Panchanan, M.A. *Europe.*
1907 Mar. 6.	R.	Ghosh, Prafulla Chundra, M.A. 27/3, *Boitakhana Bazar Road, Calcutta.*
1869 Feb. 3.	N.R.	Ghosh, Pratapa Chandra, B.A. *Vindyachal.*
1912 Sept. 4.	R.	Ghosh, Tarapada. 14, *Paddapuker Street. Kidderpur, Calcutta.*
1902 June 4.	N.R.	Ghuznavi, The Hon. A. K., *Mymensingh.*
1913 Dec. 3.	R.	Godson, Capt. Charles Aubery, I.M.S. *Medical College, Calcutta.*
1909 April 7.	R.	Goenka, Briz Mohan. 24, *Banstolla Street, Calcutta.*

Date of Election.		
1907 Mar. 6.	R.	Goenka, Roormall. 57, *Burtolla Street, Calcutta.*
1905 July 5.	N.R.	Gossain, Hemchandra, Extra Assistant Commissioner. *Tezpur.*
1909 Jan. 6.	R.	Gourlay, William Robert, C.I.E., I.C.S. *Government House, Calcutta.*
1910 Sept. 7.	R.	Gravely, Frederic Henry, M.SC., Assistant Superintendent, Indian Museum. *Calcutta.*
1905 May 3.	R.	Graves, Henry George, A.R.S.M. 1, *Council House Street, Calcutta.*
1910 Nov. 2.	A.	Graves-Law, H. D., I.C.S. *Europe.*
1907 June 5.	R.	Green, Lieut.-Col. Charles Robert Mortimer, M.D., F.R.C.S., I.M.S. 6, *Harrington Street, Calcutta.*
1910 Mar. 2.	R.	Greig, Major Edward David Wilson, M.B., I.M.S. *United Service Club, Calcutta.*
1910 Sept. 7.	A.	Grey, Lt.-Col. William George, Indian Army. *Europe.*
1900 Dec. 5.	L.M.	Grieve, James Wyndham Alleyne, Deputy Conservator of Forests. *Jalpaiguri.*
1910 April 6	A.	Grubl, D. E. *Europe.*
1901 April 3.	N.R.	Guha, Abhaya Sankar, Extra Assistant Commissioner. *Nowgong.*
1898 June 1.	R.	Gupta, Bepin Behari. *Hooghly College, Chinsura.*
1911 Aug. 2	N.R.	Habiber Rahman, Depy. Supdt., Telegraph Department. *Allahabad.*
1901 Mar. 6.	N.R.	Habibur Rahman Khan, Maulavi. Raees. *Bhikanpur, District Aligarh.*
1892 Jan. 6.	F.M.	Haig, Lieut.-Col. Wolseley, Indian Army. H. B. M.'s Consulate Genl., *Meshhed, Persia.*
1907 Aug. 7.	N.R.	Haines, Henry Haselfoot, F.C.S., F.L.S. *Mamyo, Burma.*
1908 June 3.	R.	Hallowes, Kenneth Alexander Knight, B.A., A.R.S.M., F.G.S., Assistant Superintendent, Geological Survey of India. *Calcutta.*
1904 Sept. 28.	A.	Hallward, Norman Leslie. *Europe (c/o India Office, London).*
1913 May 7.	A.	Hankin, E. H., M.A., D.SC. *Europe (c/o Chemical Examiner, Agra).*
1912 May 1.	R.	Harley, A. H. *Madrassa, Calcutta.*
1906 Dec. 5.	N.R.	Harris, Lieut. G., 56*th Infantry, F.F., Hangu.*
1908 April 1.	R.	Harrison, Edward Philip, Ph.D., F.R.S.E. *Presidency College, Calcutta.*
1897 Feb. 3.	A.	*Hayden, Henry Herbert, D.SC., C.I.E., B.A., B.E., B.A.I., F.G.S., F.A.S.B., *Europe (c/o Geological Survey of India, Calcutta).*
1907 Nov. 6.	A.	Hepper, Captain Lionel Lees, Royal Artillery. *Europe (c/o India Office, London).*

Date of Election.		
1908 June 3.	R.	Herron, Alexander Macmillan, B.Sc., Assistant Superintendent, Geological Survey of India. *Calcutta.*
1911 April 5.	N.R.	Hiralal, Rai Bahadur, B.A., M.R.A.S. *Chhindwara, C.P.*
1908 April 1.	N.R.	Hirst, Captain Frederick Christian. *Indian Army, Shillong.*
1906 Dec. 5.	A.	Hirst, Reginald John. *Europe.*
1891 July 1.	F.M.	*Holland, Sir Thomas Henry, K.C.I.E., D.Sc., A.R.C.S., F.G.S., F.R.S., F.A.S.B. *Westwood, Alderley Edge, Cheshire. England.*
1908 July 1.	R.	Holmwood, The Hon. Mr. Justice Herbert, I.C.S. *22, Theatre Road, Calcutta.*
1898 Feb. 2.	F.M.	*Hooper, David, F.C.S., F.L.S., F.A.S.B. *1, Glentnorth Terrace, Weston Super Mare, England.*
1910 Jan. 5.	R.	Hope, Geoffroy D., B.Sc., Ph.D. *27, Chowringhee Road, Calcutta.*
1914 Feb. 4.	R.	Hornell, The Hon. Mr. W. W., Director, Public Instruction, Bengal. *Writers' Building, Calcutta.*
1901 Dec. 4.	R.	Hossack, William Cardiff, M.D., D.P.H. *Grand Hotel, Calcutta.*
1873 Jan. 2.	L.M.	Houstoun, George L., F.G.S. *Johnstone Castle, Renfrewshire, Scotland.*
1905 July 5.	N.R.	Humphries, Edgar de Montfort, B.A., I.C.S., Settlement Officer. *Pertabgarh, Oudh.*
1911 June 7.	R.	Husain, M. Hedayat. *7-1, Ramsanker Roy's Lane, Calcutta.*
1908 June 3.	N.R.	Hutchinson, C. M. *Pusa.*
1911 Feb. 1.	R.	Insch, Jas. *89, Park Street, Calcutta.*
1904 Jan. 6.	N.R.	Jackson, Victor Herbert, M.A. *Patna College, Bankipur.*
1908 Nov. 4.	N.R.	Jacob, Sydney Montague, I.C.S. (*c/o Messrs. King King & Co., Bombay*).
1907 Dec. 4.	R.	James, Henry Rosher, M.A., Bengal Education Service. *Principal, Presidency College, Calcutta.*
1905 May 3.	N.R.	Jayaswal, Kashi Prasad, Bar.-at-Law, *Bankipur.*
1907 Sept. 25.	N.R.	Jenkins, Owen Francis, I.C.S., Offg. Joint Magistrate. *Muttra.*
1912 Mar. 6.	A.	Jessop, W. *Europe (c/o Young Men's Christian Association, Calcutta).*
1908 June 3.	R.	Jones, Herbert Cecil, A.R.S.M., A.R.C.S., F.G.S., Asst. Supdt., Geological Survey of India. *Calcutta.*
1911 Sept. 1.	N.R.	Juggarao, Sree Raja Ankitam Venkata. *Zemindar of Shermahamadpuram, Dabagardens, Vizagapatam.*

Date of Election.		
1911 Nov. 1.	N.R.	Kamaluddin Ahmed, Shams-ul-Ulama. *Supdt., Govt. Madrassa, Chittagong.*
1891 Feb. 4.	N.R.	Kapur, Raja Ban Behari, C.S.I. *Burdwan.*
1911 Jan. 1.	N.R.	Kaye, George Rusby. Registrar, Govt. of India, Dept. of Education. *Simla.*
1910 May 4.	R.	*Kemp, Stanley W., B.A., F.A.S.B., Senior Assistant Superintendent, Indian Museum. *Calcutta.* [pur.
1882 Mar. 1.	N.R.	Kennedy, Pringle, M.A., B.L., Vakil. *Mozuffer-*
1906 Aug. 1.	R.	Kennedy, William Willoughby, M.A., M.D., D.P.H., M.R.S.C., L.R.C.P. 10, *Harrington St., Calcutta.*
1906 Sept. 19.	R.	Kesteven, Charles Henry, Solicitor to Government. 26, *Dalhousie Square, Calcutta.*
1909 April 7.	R.	Kilner, John Newport, M.B., L.R.C.S., L.R.C.P. *Garden Reach, Calcutta.*
1910 Mar. 2.	R.	Kirkpatrick, W. *Chartered Bank Buildings, Calcutta.*
1896 July 1.	A.	Küchler, George William, C.I.E., M.A. *Europe.*
1910 Sept. 7.	N.R.	Kumar, Sahu Ram. *Thakurdware, Moradabad.*
1914 April 1.	N.R.	Laddu, Tukaram Krishna. *Queen's College, Benares.*
1914 July 1.	R.	Laha, Satya Charan, B.A., B.L. 24, *Sukeas St., Calcutta.*
1887 May 4.	L.M.	Lanman, Charles Rockwell. 9, *Farrar Street, Cambridge, Massachusetts, U.S. America.*
1889 Mar. 6.	L.M.	*La Touche, Thomas Henry Digges, B.A., F.G.S., F.A.S.B. *Alfriston Hills Road, Cambridge, England.*
1914 Aug. 5.	R.	Law, Bimala Charan, 24, *Sukeas St., Calcutta.*
1911 Feb. 1.	R.	Law, Narendra Nath. 96, *Amherst St., Calcutta.*
1909 Jan. 6.	A.	Leake, A. Martin, F.R.C.S., V.C. *Europe.*
1902 July 2.	N.R.	Leake, Henry Martin, M.A., F.L.S. *Nawabgunj, Cawnpore.*
1889 Nov. 6.	R.	Lee, The Hon. Mr. William A., F.R.M.S. 2, *New China Bazar Street, Calcutta.*
1907 Dec. 4.	N.R.	Little, James Henry, Assistant Master, Nawab Bahadur's Institution. *Murshidabad.*
1907 Mar. 6.	R.	Lloyd, Major Richard Ernest, M.B., B.SC., I.M.S. *Medical College, Calcutta.*
1911 May 3.	R.	Lomax, C. E., M.A. 11, *Loudon Street, Calcutta.*
1906 Oct. 31.	A.	Luard, Captain Charles Eckford, Indian Army, M.A. (Oxon). *Europe.*
1910 April 6.	A.	Ludwig, Eugen. *Europe.*
1905 Aug. 2.	N.R.	Lukis, The Hon. Surgeon-General Sir Charles Pardey, K.C.S.I. C.S.I., M.B., F.R.C.S., I.M.S., Director-General, Indian Medical Service. *Simla.*

Date of Election.		
1913 Jan. 8.	R.	Luxburg, Count Graf. Karl L., Imperial Consul-General for Germany. 16, *Store Road, Ballygunge, Calcutta.*
1870 April 7.	L.M.	Lyman, B. Smith. 708, *Locust Street, Philadelphia, U.S. America.*
1912 April 3.	A.	MacCabe, Surgeon Capt. Frederick. *Europe (c/o India Office, London).*
1905 Aug. 2.	R.	McCay, Major David, M.B., I.M.S. *Medical College, Calcutta.*
1893 Jan. 11.	L.M.	Maclagan, The Hon. Sir Edward Douglas, M.A., K.C.S.I., C.S.I., I.C.S. Secretary, Government of India, Revenue and Agriculture Department. *Simla.*
1912 May 1.	R.	McLean, David. *Chowringhee Mansions, Calcutta.*
1913 Mar. 5.	N.R.	MacMahon, P. S., Canning College, *Lucknow.*
1893 Jan. 11.	L.M.	Madho Rao Scindia, His Highness Maharajah Colonel Sir, *Alijah Bahadur,* G.C.S.I., G.C.V.O., A.D.C., LL.D., Maharajah of Gwalior. *Jai Bilas, Gwalior.*
1906 Dec. 5.	R.	Mahalanobis, Subodh Chandra, B.SC., F.R.S.E., F.R.M.S. 210, *Cornwallis Street, Calcutta.*
1911 Mar. 1.	R.	Mahatap, The Hon. Sir Bijoy Chand, K.C.S.I., Maharajadhiraj of Burdwan. 6, *Alipur Road, Calcutta.*
1898 Nov. 2.	N.R.	Maitra, Akshaya Kumar, B.A., B.L. *Rajshahi.*
1901 July 6.	A.	Malyon, Lieut. Frank Hailstone. *Europe (c/o India Office, London).*
1901 June 5.	N.R.	Mann, Harold Hart, D.SC., M.SC., F.L.S., Principal, Agricultural College. *Poona.*
1907 Dec. 4.	N.R.	Manners-Smith, Lieut.-Col. John, Indian Army, C.V.O., C.I.E., Resident, Nepal. *Khatmandu.*
1899 Aug. 30.	N.R.	Mannu Lal, Rai Bahadur, Retired Civil Surgeon. *The Palms, Fyzabad.*
1905 Dec. 6.	N.R.	Marsden, Edmund, B.A., F.R.G.S. *Bombay.*
1911 Aug. 2.	A.	Maulik, Samarendra. (*Imperial College of Science and Technology, South Kensington, London, S.W.*).
1912 Jan. 10.	N.R.	Mazumdar, Rai Jadunath, Bahadur, Government Pleader. *Jessore.*
1913 June 4.	R.	Mazumdar, Ramesh Chandra. 16, *Chandranath Chatterji Street, Bhowanipur, Calcutta.*
1886 Mar. 3.	L.M.	Mehta, Roostumjee Dhunjibhoy, C.I.E. 9, *Rainey Park, Ballygunge, Calcutta.*
1895 July 3.	A.	Melitus, Paul Gregory, C.I.E., I.C.S. *Europe (c/o India Office, London).*
1914 May 6.	N.R.	Menon, K. Ramunni. *Presidency College, Madras.*

Date of Election.		
1911 April 5.	N.R.	Meston, The Hon. Sir J. S., K.C.S.I., C.S.I., I.C.S. *Government House, Lucknow.*
1884 Nov. 5	R.	*Middlemiss, Charles Stewart, B.A., F.G.S., F.A.S.B., Superintendent, Geological Survey of India. *Calcutta.*
1905 Dec. 6.	R.	Midhut Mohamed Hossain Khan. 8, *Golam Sobhan's Lane, Calcutta.*
1884 Sept 3.	R.	Miles, William Harry. 7, *Church Lane, Calcutta.*
1912 June 5.	N.R.	Misra, Champaram. *Barabanki, Oudh.*
1911 July 5.	N.R.	Misra, Shyam Behari, B.A., I.C.S., Revenue Member, Council of Regency. *Jodhpur.*
1897 Jan. 6.	N.R.	Misra, Tulsi Ram, M.A., Prof., D. J. High School. *Kanouj.*
1906 June 6.	R.	Mitra, Kumar Manmatha Nath. 34, *Shampukur Street, Calcutta.*
1910 July 6.	R.	Mohapatra, Srikrishna. 10/1, *St. James's Square, Calcutta.*
1908 Mar. 4.	R.	Moitry, Manmatho Nath, Landholder. *Serampore.*
1908 Mar. 4.	A.	Mollison, James. *Europe.*
1901 Aug. 7.	N.R.	Molony, Edmund Alexander, I.C.S. *Allahabad.*
1895 July 3.	N.R.	Monohan, Francis John, I.C.S. 4, *Theatre Road, Calcutta.*
1910 Feb. 2.	R.	Monohar Lal, M.A. *Barrackpore.*
1906 Dec. 5.	N.R.	More, Capt. James Carmichael. 51*st Sikhs. U.S. Club, Simla.*
1906 Dec. 5.	N.R.	Morton, Captain Sidney. *24th Punjabis. Nowshera.*
1908 Dec. 2.	R.	Moses, Capt. Owen St. John, M.D., F.R.C.S., I.M.S. 8, *Lansdowne Road, Calcutta.*
1909 Mar. 3	R.	Mukherjee, Brajalal, M.A. 9, *Old Post Office Street, Calcutta.*
1909 Jan. 6.	R.	Mukherjee. Govinda Lall. 9, *Old Post Office Street, Calcutta.*
1899 Sept. 29.	R.	Mukherjee, Jotindra Nath, B.A., Solicitor. 3, *Old Post Office Street, Calcutta.*
1900 May 2.	R.	Mukherjee, Phani Bhusan, B.Sc. 57, *Jhowtola Road, Ballygunge, Calcutta.*
1898 May 4.	R.	Mukherjee, Sir Rajendra Nath, K.C.I.E. 7, *Harrington Street, Calcutta.*
1894 Aug. 30.	R.	Mukherjee, Sibnarayan. *Uttarpara, Bally.*
1886 May 5	L.M.	*Mukhopadhyaya, The Hon. Justice Sir Asutosh, Kt., C.S.I., M.A., D.L., D.Sc., F.R.S.E., F.R.A.S., F.A.S.B., Judge, High Court. *Calcutta.*
1908 Feb. 5.	R.	Mukhopadhyaya, Girindra Nath, B.A., M.D. 80, *Russa Road North, Bhowanipur, Calcutta.*
1892 Dec. 7.	R.	Mukhopadhyaya, Panchanan. 46, *Bechoo Chatterji's Street, Calcutta.*
1909 Mar. 3.	R.	Mullick, Indu Madhab, M.A., M.D. 70, *Harrison Road, Calcutta.*

Date of Election.		
1901 April 3.	R.	Mullick, Pramatha Nath, Zemindar. 7, *Prasonno Kumar Tagore's Street, Calcutta.*
1910 Nov. 2.	N.R.	Murray, William Alfred, B.A. (Cantab), M.B. *Chittagong.*
1911 Sept. 1.	N.R	Murtaza Hosein Khan, Nawab, Vakil and Zemindar, Katra abu Torabkhan. *Lucknow.*
1908 Sept. 23.	N.R.	Muzaffur Ali Khan Bahadur, Syed, Zemindar and Rais. *Jausath, Dist. Muzaffarnagar.*
1906 Mar. 7.	R.	Nahar, Puran Chand. 48, *Indian Mirror Street, Calcutta.*
1908 Sept. 23.	N.R.	Nande, Lala Jyotiprakas, Zemindar. *Burdwan.*
1904 Dec. 7.	A.	Nathan, Robert, C.S.I., I.C.S. *Europe.*
1914 Feb. 4.	R.	Nawab Ali, Chaudhury, The Hon. Nawab Syed, 27, *Weston Street, Calcutta.*
1914 Feb. 4.	N.R.	Neogi, Panchanan. *Rajshahi College, Rajshahi.*
1890 Feb. 5.	N.R.	Nesfield, Capt. Vincent Blumhardt, F.R.C.S., L.R.C.P., I.M.S. *Banda.*
1901 Mar. 6.	N.R.	Nevill, Henry Rivers, I.C.S., Editor, District Gazetteers, United Provinces. *Naini Tal.*
1910 May 4.	R.	Newman, Lieut.-Col. Ernest Alan Robert, I.M.S. 16, *Alipore Road, Calcutta.*
1889 Aug. 29.	L.M.	Nimmo, John Duncan (*c/o Messrs. Walter Duncan & Co.,* 137, *West George Street, Glasgow*).
1913 July 2.	N.R.	Norton, E. L., I.C.S., District Magistrate. *Allahabad.*
1908 Feb. 5.	N.R.	Nott, Lieut.-Col. Arthur Holbrook, M.D., I.M.S. *Berhampur.*
1906 Dec. 5.	R.	O'Kinealy, Lieut.-Col. Frederick, M.R.C.S. (Eng.), L.R.C.P. (Lond.), I.M.S. *Presidency General Hospital, Calcutta.*
1905 Nov. 1.	A.	O'Malley, Lewis Sydney Steward, B.A., I.C.S. *Europe.*
1909 April 7.	N.R.	Ozzard, Lieut.-Col. Fairlie Russell, I.M.S. *Ahmedabad.*
1907 July 3.	R.	Page, William Walter Keightley. 10, *Old Post Office Street, Calcutta.*
1901 Jan. 2.	N.R.	Pande, Ramavatar, B.A., I.C.S., District Judge. *Mirzapur, U.P.*
1901 Aug. 28.	N.R.	Panton, Edward Brooks Henderson, B.A., I.C.S. *Berhampore, Murshidabad.*
1904 Aug. 3.	N.R.	Parasnis, Dattalraya Balwant. *Satara.*
1910 April 6.	N.R.	Patuck, Pestonji Sorabji, I.C.S. *Narsinghpur.*
1899 Aug. 2.	R.	Peake, Charles William, M.A., *The Observatory, Alipur, Calcutta.*

Date of Election.		
1906 Dec. 5.	R.	Peart, Major Charles Lubé. 106*th Hazara Pioneers, Secretary and Member, Board of Examiners, Calcutta.*
1888 June 6.	L.M.	Pennell, Aubray Percival, B.A., Bar.-at-Law. *Rangoon.*
1877 Aug. 1	N.R.	Peters, Lieut.-Col. Charles Thomas, M.B., I.M.S. (retired). *Dinajpur.*
1906 April 4.	R.	Petrocochino, Leonidar. 4, *Clive Ghat Street, Calcutta.*
1889 Nov. 6.	L.M.	*Phillott, Lieut.-Colonel Douglas Craven, PH.D., F.A.S.B. *Indian Army (retired).* C/o Messrs. Grindlay & Co., 54, *Parliament Street, London.*
1914 Nov. 4.	R.	Pickford Alfred Donald. 12, *Mission Row, Calcutta.*
1904 June 1.	R.	Pilgrim, Guy Ellcock, D.SC., F.G.S., Assistant Superintendent, Geological Survey of India. *Calcutta.*
1910 Aug. 3.	R.	Podamraj, Jain, 9, *Joggomohun Mullick's Lane, Calcutta.*
1910 Feb. 2.	N.R.	Poplai, Sri Ram. *Jullundur City.*
1906 Aug. 1.	N.R	Price, Charles Stanley. *Victoria Boys' School, Kurseong.*
1907 Jan. 2.	A.	Pulley, Lieut. Henry Cuthbert, 12*th Pioneers. Europe.*
1910 Dec. 7.	N.R.	Radha Krishna. *Banker, Chauk, Patna City.*
1914 Mar. 4.	N.R.	Raffin, Alain. *Mirzapur.*
1880 April 7.	N.R.	Rai, Bepin Chandra. *Giridih, Chota Nagpur.*
1895 Aug. 29.	N.R.	Rai Chaudhuri, Jatindranath, M.A., B.L., Zemindar. *Taki, Jessore.*
1913 April 2.	R.	Ramaswami, M. S., Curator of the Herbarium. *Royal Botanic Gardens, Sibpur, Howrah.*
1908 Feb. 5.	F.M.	Randle, Herbert Neil, B.A. *Ludgate Circus, London, W.C.*
1908 July 1.	N.R.	Ranganathasvami, S. P. V., *Aryavaraguru, Arshya Library, Vizagapatam.*
1905 Jan. 4.	N.R.	Rankin, James Thomas, I.C.S. *Darjeeling.*
1907 Aug. 7.	N.R.	Ranking, Capt. James. *Nowshera.*
1904 Mar. 4.	F.M.	Rapson, E. J. 8, *Mortimer Road, Cambridge.*
1890 Mar. 5.	R.	* Ray, Prafulla Chandra, D.Sc., F.A.S.B., Professor, Presidency College. *Calcutta.*
1887 May 4.	R.	Ray, Prasanna Kumar, D.sc. (Lond. and Edin.) 7, *Ballygunge Circular Road, Calcutta.*
1905 May 3.	R.	Richardson, The Hon. Mr. Justice Thomas William, I.C.S., Judge, High Court. *Calcutta.*
1908 Feb. 5.	N.R.	Rigo-de-Righie, Alceste Carlo. *Royal Hotel, Naini Tal.*
1910 April 6.	A.	Robertson, A. White, L.R.C.P. *Europe* (c/o *War Office, London*).

Date of Election.		
1913 Sept. 3.	R.	Rogalsky, P. A., Attaché to the Imperial Russian Consulate General. 3. *Upper Wood Street, Calcutta.*
1903 Mar. 4.	N.R.	Rogers, Charles Gilbert, F.L.S., F.C.H., Forest Department. *Port Blair, Andamans.*
1900 April 4.	R.	*Rogers, Lt.-Col. Sir Leonard, Kt., C.I.E., M.D., B.S., F.R.C.P., F.R.C.S., F.A.S.B., I.M.S. *Medical College, Calcutta.*
1901 Dec. 4.	F.	*Ross, Edward Denison, C.I.E., Ph.D., F.A.S.B. British Museum, Dept. of Oriental Books and MSS. *London.*
1909 Nov. 3.	N.R.	Roychaudhury, Mrityunjoy. *Shyampur P.O., Rungpur.*
1908 June 3.	N.R.	Roychaudhury, Surendra Chandra, Zemindar. *Koondi, Rungpur.*
1889 June 5.	N.R.	Roy, Maharaja Girjanath. *Dinagepore.*
1903 July 1.	L.M.	Roy, Maharaja Jagadindranath, *Bahadur.* 6, *Lansdowne Road, Calcutta.*
1910 Sept. 7.	N.R.	Roy, Kumar Sarat Kumar. *Dayarampur, Rajshahi.*
1914 June 3.	A.	Roy, Dr. Satyendra Nath. *Europe (c/o War Office, London).*
1906 Feb. 7.	N.R.	Russell, Charles, M.A. *Patna College, Bankipur.*
1908 Feb. 5.	N.R.	Russell, Robert V., I.C.S., Supdt. of Gazetteer and Ethnography. *Mandla, C.P.*
1913 Apl. 2	N.R.	Sahay, Rai Sahib Bhagvati, M.A., B.L., Offg. Inspector of Schools, Patna Division. *Bankipur.*
1911 Nov. 1	N.R.	Sahni, Dayaram, M.A., Supdt. of Archaeology. *Jammu, Kashmir.*
1896 Aug. 27.	R.	Samman, The Hon. Mr. Herbert Frederick, I.C.S., Secretary, Govt. of Bengal, Genl. Dept. *Calcutta.*
1910 May 4	A.	Sandes, Capt. J. D., M.B., I.M.S. *Europe (c/o Medical College, Calcutta).*
1906 June 6.	R.	Sanial, Surendra Prasad, M.A., F.C.S., *Serampur.*
1899 June 7.	N.R.	Sarkar, Chandra Kumar. *Kawkanik, Moulmein.*
1898 Mar. 2.	N.R.	Sarkar, Jadunath. *Patna College, Bankipur.*
1909 Mar. 3.	R.	Sarvadhikari, The Hon. Mr. Deva Prasad, M.A., B.L. 2, *Old Post Office Street, Calcutta.*
1911 Jan. 4.	R.	Sarvadhikari, Dr. Suresh Prasad. 79-1, *Amherst St., Calcutta.*
1902 Feb. 5.	A.	Schulten, Joseph Henry Charles, Ph.D. *Europe.*
1900 Dec. 5.	N.R.	Schwaiger, Imre George, Expert in Indian Art. *Kashmir Gate, Delhi.*
1908 July 1.	N.R.	Seal, Brojendra Nath, M.A. *Victoria College, Cooch Behar.*
1911 June 7.	A.	Seconde, Lieut. Emile Charles. *Europe (c/o Medical College, Calcutta).*

Date of Election.		
1906 Feb. 7.	R.	Sen, Girindra Kumar. 303, *Bow Bazar Street, Calcutta.*
1902 May 7.	R.	Sen, Jogendra Nath, *Vidyaratna*, M.A. 31, *Prasanna Kumar Tagore's Street, Calcutta.*
1905 Jan. 4.	R.	Sen, Sukumar. 220, ***Lower Circular Road***, *Calcutta.*
1914 April 1.	R.	Sen-Gupta, Dr. Nares Chandra. 3, *Duff Lane, Calcutta.*
1897 Dec. 1.	R.	Seth, Mesrovb J. 19, *Lindsay Street, Calcutta.*
1911 July 5.	R	Sewell, Capt. Robert Beresford Seymour, M.R.C.S., L.R.C.P., I.M.S. *c/o Indian Museum, Calcutta.*
1885 Feb. 4.	L.M.	*Shastri, Mahamahopadhyaya Haraprasad, C.I.E., M.A., F.A.S.B. 26, *Pataldanga Street, Calcutta.*
1902 Dec. 3.	N.R.	Shastri, Harnarain Goswami. *Hindu College, Delhi.*
1912 Jan. 10.	R.	Shirazi, Aga Muhamad Kazim. 23, *Lower Chitpur Road, Calcutta.*
1909 Jan. 6.	N.R.	Shirreff, Alexander Grierson, B.A., I.C.S. *Sitapur.*
1913 Dec. 3	R.	Shorten, Capt. James Alfred, B.A., M.B., B.Ch., I.M.S. *Medical College, Calcutta.*
1914 Mar. 4.	R.	Shrosbree, A. de Bois. 9/1, *Middleton Row, Calcutta.*
1908 Mar. 4.	R.	Shujaat Ali, Nasurul Mamalik Mirza, *Khan Bahadur*, Acting Consul-General for Persia. 10, ***Hungerford Street, Calcutta.***
1902 Feb. 5.	N.R.	Shyam Lal, Lala, M.A., LL.B., Deputy Collector. *Naimadri, Agra.*
1899 May 3.	N.R.	Silberrad, Charles Arthur, B.A., B.Sc., I.C.S., *Gorakhpur, U.P.*
1913 Mar. 5	N.R.	Simonsen, J. L. *Presidency College, Madras.*
1909 April 7.	N.R.	Simpson, George Clarke, D.Sc. *Simla.*
1903 Aug. 26.	F.M.	Simpson, John Hope, I.C.S. (*c/o Messrs. Barclay & Co., 1, Dickinson Street, Manchester, England*).
1894 July 4.	N.R.	Singh, Raja Kushal Pal, M.A. *Narki.*
1895 Aug. 29.	R.	Singh, Lachmi Narayan, M.A., B.L., Pleader, High Court. *Calcutta.*
1912 May 1.	R.	Singh Ray, Lalit Mohan, Rai Bahadur. 4, *Creek Row, Calcutta.*
1893 Mar. 1.	N.R.	Singh, Maharaja Kumara Sirdar Bharat, I.C.S. (retired). *Shankergar, Allahabad.*
1892 Mar. 2.	L.M.	Singh, Raja Ooday Pratab, C.S.I., Raja of Bhinga. *Bhinga.*
1899 Aug. 29.	N.R.	Singh, H.H. The Maharaja Sir Prabhu Narain, *Bahadur*, G.C.I.E., Maharaja of Benares. *Ramnagar Fort, Benares.*

Date of Election.		
1909 April 7.	N.R.	Singh, Raja Prithwipal, Talukdar of Surajpur. *District Barabanki, Oudh.*
1889 Nov. 6.	L.M.	Singh, H.H. The Hon. Maharaja Sir Rameshwara, *Bahadur*, K.C.I.E. *Durbhanga.*
1912 Mar. 6.	R.	Singh, Maharaja Ranjit, of Nasirpur. 58, *Chowringhee Road, Calcutta.*
1913 July 2	N.R.	Singh, Rudradat, M.A., LL.B., Vakil. *Lucknow.*
1894 Feb. 7.	N.R.	Singh, H.H. The Maharaja Vishwa Nath, *Bahadur. Chhatturpur, Bundelkhund.*
1912 Sept. 5.	N.R.	Singhi, Bahadur Sing. *Azimgung, Murshidabad.*
1897 Jan. 6.	R.	Sircar, Amrita Lal, F.C.S., L.M.S. 51, *Sankaritolla Lane, Calcutta.*
1898 Aug. 3.	N.R.	Sita Ram, B.A., Depy. Magistrate. *Allahabad.*
1913 July 2	N.R.	Sivaprasad, B.A., Offg. Junior Secretary to the Board of Revenue, U.P. *Allahabad.*
1909 July 7.	A.	Smith, Capt. H. Emslie, I.M.S. *Europe* (*c/o India Office, London*).
1911 Mar. 1.	N.R.	Smith, Major O. A. 27th *Punjabis. Hajaribagh.*
1907 Mar. 6.	N.R.	Sofiulla Saifududdin Ahmed, Maulavi, Supdt. of Excise. *Nowgong.*
1912 Jan. 10.	R.	Southwell, T., A.R.C.S., F.Z.S., F.L.S., Deputy Director of Fisheries. *Writers' Buildings, Calcutta.*
1901 Dec. 4.	N.R.	Spooner, David Brainerd. *Bankipur.*
1913 July 2.	N.R.	Srinivas Iyenger, P. T., Principal, M.A.V.N. College. *Vizagapatam.*
1912 May 1.	A.	Stadler, George L. (*48 Grand Marché, Maestricht, Holland*).
1912 Oct. 30.	N.R.	Stallard, Dr. Philip Lechmen, District Surgeon, G.I.P. Railway. *Igatpuri, Bombay.*
1904 Sept. 28.	N.R.	Stapleton, Henry Ernest, B.A., B.Sc. *Dacca.*
1908 Dec. 2.	A R.	Steen, Capt. Hugh Barkley, M.B., I.M.S. *Europe* (*c/o India Office, London*).
1904 June 1.	R	Stephen, The Hon. Mr. Justice Harry Lushington, Judge, High Court. *Calcutta.*
1899 Aug. 30.	R.	Stephen, St. John, B.A., LL.B., Barrister-at-Law. 7, *Russell Street, Calcutta.*
1900 Aug. 29.	N.R.	Stephenson, Lieut.-Col. John, I.M.S. *Lahore.*
1907 Dec. 4.	R.	Stevens, Lieut.-Col. C. R., I.M.S. *Medical College, Calcutta.*
1907 June 5.	N.R.	Stewart, Capt. Francis Hugh, I.M.S. *Bombay.*
1906 Dec. 5.	F.M.	Stokes, Captain Claude Bayfield, Military Attaché. *Teheran, Persia.*
1911 Feb. 1.	R.	Stonebridge, Arthur W., Chief Engineer, Messrs. Burn & Co. 7, *Hastings St., Calcutta.*
1914 Jan. 7.	R.	Strauss, Dr. O. *Calcutta University, Calcutta.*
1907 Aug. 7.	N.R.	Subramania Iyer, Valavanur, Extra Asst. Conversator of Forests. *Coimbatore.*

Date of Election.		
1907 June 5.	R.	Suhrawardy, Abdullah Al-Ma'mūn, Iftikharul Millat, M.A., D.Litt., LL.D., Bar.-at-Law. 34, *Kapalitola, Calcutta.*
1914 Mar. 4.	R.	Sutherland, Lt.-Col., William Dunbar, I.M.S. *U.S. Club, Calcutta.*
1907 June 5.	N.R.	Swinhoe, Rodway Charles John, Solicitor. *Mandalay, Upper Burma.*
1909 Jan. 6.	R.	Tagore, Kshitindranath, B.A. *Howrah.*
1914 April 1.	R.	Tagore, Prafulla Nath. 1, *Darpanarain Tagore Street, Calcutta.*
1898 April 6.	R.	Tagore, The Hon. Maharaja Sir Prodyat Coomar, *Bahadur*, Kt. *Pathuriaghatta, Calcutta.*
1906 Mar. 7.	R.	Tagore, Kumar Shyama Kumar, Zemindar. 65, *Pathuriaghatta Street, Calcutta.*
1904 July 6.	F.M.	Talbot, Walter Stanley, I.C.S. 9, *Pall Mall, London, S.W.*
1910 Aug. 3.	N.R.	Tancock, Capt. Alexander Charles. 31*st Punjabis, Nowshera, N.W.F.P.*
1893 Aug. 31.	N.R.	Tate, George Passman, Assistant Superintendent, Survey of India. *Mussoorie.*
1909 Jan. 6.	N.R.	Taylor, Charles Somers, B.Sc. *Bhagalpur.*
1906 Dec. 5.	N.R.	Tek Chand, Dewan, B.A., M.R.A.S., I.C.S., Deputy Commissioner. *Gujranwala, Punjab.*
1878 June 5.	F.M.	Temple, Colonel Sir Richard Carnac, Bart., Indian Army, C.I.E. 9, *Pall Mall, London.*
1914 Aug. 5.	N.R.	Tessitori, Dr. L. P. *Guest House, Jodhpur.*
1904 May 4.	N.R.	Thanawala, Framjee Jamasjee. 85, *Bazar Gate St., Fort, Bombay.*
1911 Mar. 1.	F.M.	Thomas, F. W., M.A., Ph.D., Librarian, India Office. *London.*
1909 Aug. 4.	N.R.	Thompson, John Perronet, M.A., I.C.S. *Lahore.*
1908 Nov. 4.	N.R.	Thornely, Major, Michael Harris, I.M.S. *Durbhanga.*
1898 Nov. 2.	R.	Thornton, Edward, F.R.I.B.A. 6, *Clive Street, Calcutta.*
1911 Mar. 1.	A.	Thorpe, Godfrey Francis. Bengal Pilot Service. *Europe.*
1911 July 5.	R.	Thurston, Capt. Edward Owen, I.M.S., B.S., F.R.C.S. *Medical College, Calcutta.*
1904 June 1.	R.	Tipper, George Howlett, M.A., F.G.S., Assistant Superintendent, Geological Survey of India. *Calcutta.*
1912 Nov. 6.	A.	Tomkins, H. G., C.I.E., F.R.A.S. *Europe* (c/o *India Office, London*).
1909 Dec. 1.	A.	Toth, Eugene. *Europe.*
1907 Feb. 6.	F.M.	*Travers, Morris William, D.Sc., F.R.S., F.A.S.B. 43, *Warwick Gardens, London, W.*
1861 June 5.	L.M.	Tremlett, James Dyer, M.A., I.C.S. (retired). *Dedham, Essex, England.*

Date of Election.		
1894 Sep. 27.	R.	Vasu, Nagendra Nath. 20, *Kantapuker Lane, Bagbazaar, Calcutta.*
1900 Aug. 29.	N.R.	Vaughan, Lieut.-Col. Joseph Charles Stoelke, I.M.S. *Bhagalpur.*
1890 Feb. 5.	N.R.	*Venis, Arthur, M.A., D.Litt., C.I.E., F.A.S.B. *Benares.*
1902 June 4.	R.	*Vidyabhusana, Mahamahopadhyaya Satis Chandra, M.A., Ph.D. F.A.S.B. 26/1, *Kanay Lal Dhur's Lane, Calcutta.*
1901 Mar. 6.	F.M.	*Vogel, Jean Philippe, Litt.D., F.A.S.B. *The University, Leiden, Holland.*
1894 Sept. 27.	L.M.	Vost, Lieut.-Col. William, I.M.S., Civil Surgeon. *Lucknow.*
1902 Oct. 29.	R.	*Vredenburg, Ernest, B.L., B.Sc., A.R.S.M., A.R.C.S., F.G.S., F.A.S.B. 27, *Chowringhee Road, Calcutta.*
1909 Jan. 6.	N.R.	*Walker, Gilbert Thomas, C.S.I., D.Sc., M.A., F.R.S., F.A.S.B., Director-General of Observatories. *Simla.*
1907 July 3.	R.	Walker, Harold, A.R.C.S., F.G.S., A.M. Inst. M., Assistant Superintendent, Geological Survey of India. *Calcutta.*
1900 Jan. 19.	A.	Wallace, David Robb. *Europe (c/o Messrs. Ernsthausen, Ltd., Calcutta).*
1901 June 5.	N.R.	Walsh, The Hon. Mr. Ernest Herbert Cooper, C.S.I., I.C.S., Member of the Board of Revenue, Behar and Orissa. *Ranchi.*
1911 Feb. 1.	A.	Waters, Dr. Harry George, F.R.I.P.H. *Europe (c/o East Indian Railway, Jamalpur).*
1905 Dec. 6.	N.R.	Watson, Edwin Roy, M.A., B.Sc. *Dacca.*
1912 Mar. 6.	R.	Watt, Rev. J., Principal, Scottish Churches College. 4, *Cornwallis Square, Calcutta.*
1910 Sept. 7.	R.	Watts, H. P., B.A. (Cantab). 11, *Loudon Street, Calcutta.*
1909 Dec. 1.	N.R.	Webster, J. E., I.C.S. *Sylhet, Assam.*
1907 April 3.	A.	White, Lieut. Arthur Denham, M.B., B.S., (Lond.), I.M.S. *Europe (c/o India Office, London).*
1913 April 2.	R.	White, Bernard Alfred, 39, *Alexandra Court, Calcutta.*
1907 Feb. 6.	A.	White, Captain J. R., D.S.O. *Europe (c/o India Office, London).*
1906 Sept. 19.	N.R.	Whitehead, Richard Bertram, I.C.S. *Rupar, Umbala, Punjab.*
1909 April 7.	A.	Wilkinson, Major Edmund, I.M.S., L.R.C.S., D. Litt. *Europe (c/o India Office, London).*
1910 April 6.	A.	Williams, Garfield Hodder, M.B., B.S. (Lond.), M.R.C.S., L.R.C.P. *Europe (c/o Young Men's Christian Association, Calcutta).*

Date of Election.		
1914 May 6.	A.	Wilson, Major Horace Hayman. *Europe (c/o India Office, London).*
1913 Dec. 3.	R.	Wilson, Major Roger Parker, F.R.C.S., D.P.H., I.M.S. *Campbell Hospital, Sealdah, Calcutta.*
1910 Dec. 7.	A.	Windsor, Major Frank Needham, I.M.S. *Europe (c/o Medical College, Calcutta).*
1904 Mar. 4.	R.	Wood, William Henry Arden, M.A., F.C.S., F.R.G.S. 11, *Loudon Street, Calcutta.*
1909 April 7.	N.R.	Woodhouse, E. J., B.A. *Sabour.*
1906 July 4.	A.	Woodley, Rev. Edward Carruthers, M.A. *Europe (c/o London Missionary College, Calcutta).*
1912 Mar. 6.	R.	Woodroffe, The Hon. Mr. Justice John George. 3, *Outram Street, Calcutta.*
1906 Mar. 7.	N.R.	Woolner, Alfred Cooper, M.A., Principal, Oriental College. *Lahore.*
1908 April 1.	R.	Wordsworth, William Christopher, Asst. Director of Public Instruction, Bengal. *Writers' Buildings, Calcutta.*
1894 Aug. 30.	N.R.	Wright, Henry Nelson, B.A., I.C.S. *District Judge, Bareilly.*
1911 Aug. 2.	N.R.	Young, Gerald Mackworth, B.A., I.C.S. *Simla.*
1906 June 6.	N.R.	Young, Mansel Charles Gambier. *Dhanbaid.*
1910 April 6.	N.R.	Young, Capt. Thomas Charles McCombie, M.B., I.M.S. *Shillong, Assam.*
1913 May 7.	N.R.	Zutshi, Pandit Monohor Lal, Jubilee High School. *Lucknow.*

SPECIAL HONORARY CENTENARY MEMBERS.

Date of Election.	
1884 Jan. 15.	Dr. Ernst Haeckel, Professor in the University of Jena. *Prussia.*
1884 Jan. 15.	Revd. Professor A. H. Sayce, Professor of Assyriology, Queen's College. *Oxford, England.*
1884 Jan. 15.	Monsieur Émile Senart. 18, *Rue François Ier, Paris, France.*

HONORARY FELLOWS.

Date of Election.	
1879 June 4.	Dr. Jules Janssen. *Observataire d'Astronomie Physique de Paris, France.*
1894 Mar. 7.	Professor Theodor Noeldeke. *C/o Mr. Karl T. Trübner, Strassburg, Germany.*

Date of Election.	
1895 June 5.	Lord Rayleigh, M.A., D.C.L., D.Sc., LL.D., Ph.D., F.R.A.S., F.R.S. *Ferling Place, Witham, Essex, England.*
1895 June 5.	Charles H. Tawney, Esq., M.A., C.I.E. *C/o India Office, London.*
1896 Feb. 5.	Professor Charles Rockwell Lanman. 9, *Farrar Street, Cambridge, Massachusetts, U.S. America.*
1899 Feb. 1.	Dr. Augustus Frederick Rudolf Hœrnle, Ph.D., C.I.E. 8, *Northmoor Road, Oxford, England.*
1899 Dec. 6.	Professor Edwin Ray Lankester, M.A., LL.D., F.R.S., *British Museum (Nat. Hist.), Cromwell Road, London, S.W.*
1899 Dec. 6.	Professor Edward Burnett Tylor, D.C.L., LL.D., F.R.S., Keeper, University Museum. *Oxford, England.*
1901 Mar. 6.	Professor John Wesley Judd, C.B., LL.D., F.R.S., F.G.S., Late Prof. of the Royal College of Science. 30, *Cumberland Road, Kew, England.*
1902 Nov. 5.	Monsieur René Zeiller. *Ingénieur en chef des Mines. École superieur des Mines, Paris.*
1904 Mar. 2.	Professor Hendrick Kern. *Utrecht, Holland.*
1904 Mar. 2.	Professor Sir Ramkrishna Gopal Bhandarkar, K.C.I.E. *Poona.*
1904 Mar. 2.	Professor Ignaz Goldziher, Ph.D., D.Litt., LL.D., *Budapest, Hungary.*
1904 Mar. 2.	Sir Charles Lyall, M.A., K.C.S.I., C.I.E., LL.D. 82, *Cornwall Gardens, London, S.W.*
1904 Mar. 2.	Sir William Ramsay, Ph.D. (Tüb.), LL.D., Sc.D. (Dubl.), F.C.S., F.I.C. *University College, Gower Street, London, W.C.*
1904 July 2.	Sir George Abraham Grierson, K.C.I.E., Ph.D., D.Litt., C.I.E., I.C.S. (retired). *Rothfarnham, Camberley, Surrey, England.*
1906 Mar. 7.	The Right Hon'ble Baron Curzon of Kedleston, M.A., D.C.L., F.R.S. 1, *Carlton House Terrace, London, S.W.*
1908 July 1.	Lt.-Col. Henry Haversham Godwin-Austen, F.R.S., F.Z.S., F.R.G.S. *Nora Godalming, Surrey, England.*
1908 July 1.	Dr. H. Oldenberg. *The University, Gottingen, Germany.*
1911 Sept. 6.	Lieut.-Col. Alfred William Alcock, C.I.E., M.B., LL.D., C.M.Z.S., F.R.S., I.M.S. (retd.). *Heathlands, Erith Road, Belvedere, Kent, England.*
1911 Sept. 6.	Prof. Edward George Browne, M.A., M.B., M.R.C.S., L.R.C.P., M.R.A.S. *Pembroke College, Cambridge.*
1911 Sept. 6.	Dr. A. Engler, Prof. of Systematic Botany, University of Berlin, *Prussia.*
1911 Sept. 6.	Sir Clements Markham, K.C.B., F.R.S., D.Sc. 21, *Eccleston Square, London, S.W.*
1911 Sept. 6.	Mahamahopadhyaya Kamakhyanath Tarkavagisa. 111-4, *Shambazar Street, Calcutta.*

FELLOWS.

Date of Election.	
1910 Feb. 2.	N. Annandale, Esq., D.Sc., C.M.Z.S., F.L.S.
1910 Feb. 2.	The Hon'ble Justice Sir Asutosh Mukhopadhyaya, Kt., C.S.I., M.A., D.L., D.Sc., F.R.A.S., F.R.S.E.
1910 Feb. 2.	I. H. Burkill, Esq., M.A., F.L.S.
1910 Feb. 2.	Mahamahopadhyaya Haraprasad Shastri, C.I.E., M.A.
1910 Feb. 2.	Sir Thomas Holland, K.C.I.E., D.Sc., A.R.C.S., F.G.S., F.R.S.
1910 Feb. 2.	Dr. D. Hooper, F.C.S., F.L.S.
1910 Feb. 2.	T. H. D. LaTouche, Esq., B.A., F.G.S.
1910 Feb. 2.	Babu Monmohan Chakravarti, M.A., B.L.
1910 Feb. 2.	Lieut.-Colonel D. C. Phillott, Ph.D., Indian Army.
1910 Feb. 2.	Dr. Prafulla Chandra Ray, D.Sc.
1910 Feb. 2.	Lieut.-Col. Sir Leonard Rogers, Kt., C.I.E., M.D., B.S., F.R.C.P., F.R.C.S., I.M.S.
1910 Feb. 2.	E. D. Ross, Esq., C.I.E., Ph.D.
1910 Feb. 2.	Mahamahopadhyaya Satis Chandra Vidyabhusana, M.A., Ph.D., M.R.A.S.
1910 Feb. 2.	M. W. Travers, Esq., D.Sc., F.R.S.
1910 Feb. 2.	A. Venis, Esq., M.A., D.Litt., C.I.E.
1910 Feb 2.	G. T. Walker, Esq., C.S.I., D.Sc., M.A., F.R.S.
1911 Feb. 1.	The Hon. Mr. E. A. Gait, C.S.I., C.I.E., I.C.S.
1911 Feb. 1.	H. H. Hayden, Esq., D.Sc., C.I.E., B.A., B.E., B.A.I., F.G.S.
1912 Feb. 7.	H. Beveridge, Esq., I.C.S. (retired).
1912 Feb. 7.	J. C. Bose, Esq., C.S.I., C.I.E., M.A., D.Sc.
1912 Feb. 7.	P. J. Bruhl, Esq., Ph.D., F.C.S.
1912 Feb. 7.	Capt. S. R. Christophers, I.M.S.
1912 Feb. 7.	Charles Stewart Middlemiss, Esq., B.A., F.G.S.
1913 Feb. 5.	Major A. T. Gage, I.M.S.
1913 Feb. 5.	E. Vredenburg, Esq., B.I., B.Sc., A.R.S.M., A.R.C.S., F.G.S.
1913 Feb. 5.	J. Ph. Vogel, Esq., Ph.D., Litt.D.
1913 Feb. 5.	S. W. Kemp, Esq., B.A.

ASSOCIATE MEMBERS.

Date of Election.	
1875 Dec. 1.	Revd. J. D. Bate. 15, *St. John's Church Road, Folkestone, Kent, England.*
1882 June 7.	Herbert A. Giles, Esq., LL.D., Professor of Chinese in the University of Cambridge. *Cambridge. England.*
1885 Dec. 2.	Dr. A. Führer. *Europe.*
1886 Dec. 1.	Sarat Chandra Das, Rai Bahadur, C.I.E. 32, *Creek Row, Calcutta.*
1899 Nov. 1.	Revd. E. Francotte, S.J. 30, *Park Street, Calcutta.*
1902 June 4.	Revd. A. H. Francke. *Niesky Ober-Lausitz, Germany.*

Date of Election.	
1908 July 1.	Babu Dinesh Chandra Sen. 19, *Kantapuker Lane, Calcutta.*
1908 July 1.	Revd. Father J. Hoffmann, S.J. *Mauresa House, Ranchi.*
1909 Mar. 3.	Rai Balkrishna Atmaram Gupte, Bahadur. *Belvedere, Calcutta.*
1910 Sept 7.	Shamsul Ulama Maulvi Ahmad Abdul Aziz. *Azeez Bag, City-Hyderabad, Deccan.*
1910 Sept. 7.	L. K. Anantha Krishna Iyer, Esq. *Thichur.*
1910 Dec. 7.	Rev. H. Hosten, S.J. 30, *Park Street, Calcutta.*
1913 Feb. 5.	Ekendranath Ghosh, Esq., L.M.S. *Medical College, Calcutta.*
1914 Apl. 1.	Bada Kaji Marichiman Singha. *Bir Library, Nepal.*

LIST OF MEMBERS WHO HAVE BEEN ABSENT FROM INDIA THREE YEARS AND UPWARDS.*

* *Rule* 40.—After the lapse of three years from the date of a member leaving India, if no intimation of his wishes shall in the interval have been received by the Society, his name shall be removed from the List of Members.

The following members will be removed from the next Member List of the Society under the operation of the above Rule:—

Capt. Frank Powell Connor, I.M.S.
Walter Noel Edwards, Esq.
Babu Panchanan Ghosh.
D. E. Gruble, Esq.
Norman Leslie Hallward, Esq.
Major Lionel Lees Hepper.
Samarendra Maulik, Esq.
James Mollison, Esq.
Lieut. Henry Cuthbert Pulley.
Lieut. Emile Charles Seconde.
Capt. H. Emslie Smith.
Eugene Toth, Esq.
Godfrey Francis Thorpe, Esq.
David Robb Wallace, Esq.
Lieut. Arthur Denham White.
Capt. J. R. White.
Rev. Edward Carruthers Woodley.

LOSS OF MEMBERS DURING 1914.

By Retirement.

Dr. Khaliluddin Ahmed.
Babu Ganesh Lall Barik.
Edward William John Bartlett, Esq.
Babu Jyotis Chandra Bhattacharjee, M.A., B.L.
Capt. J. H. Burgess, I.M.S.
William Alexander Burns, Esq., B.A.
The Hon. Justice Sir Herbert William Camaron Carnduff, Kt., C.I.E., I.C.S.
Major Walter Valentene Coppinger, M.B., B.SC., F.R.C.S.I., I.M.S.
Babu Govinda Das.
Babu Nanda Lall Dey.
The Anagarika Hovavitarana Dharmapala.
James Macdonald Dunnett, Esq. I.C.S.
Lieut. W. M. Edwards, I.A.
Johns Carlyle Fergusson, Esq., I.C.S.
The Hon. Col. George Francis Angelo Harris, C.S.I., M.D., F.R.C.P., I.M.S.
Capt. William Frederick Harvey, I.M.S.
Josef Horovitz, Esq., Ph.D.
Kenneth Neville Knox, Esq., I.C.S.
Pandit Anand Koul.
Rev. W. R. LeQuesne.
Charles Little, Esq., M.A.
The Hon. Mr. Duncan James Macpherson, C.I.E., I.C.S.
Lieut. Hugh Geoffrey Maturin, I.A.
Lieut.-Col. Frederic Pinsent Maynard, M.B., D.P.H., I.M.S.
Capt. John Wallace Dick Megaw, M.B., I.M.S.
Walter Percy Spencer Milsted, Esq.
Babu Manmatha Nath Mukherjee.
Capt. David Munro, I.M.S.
Alfred James Ollenbach, Esq., B.A., I.C.S.
John Emanuel Panioty, Esq., L.R.C.P.
Henry Sharp, Esq., C.I.E., M.A.
Major Ernest Edwin Waters, I.M.S.
J. R. R. Wilson, Esq., M.I.C.E., F.G.S.
Rev. Arthur Willifer Young.

By Death.

Ordinary Members.

Shams-ul-Ulama Maulavi Ahmad.
Dr. Palmyr Cordier.
Charles W. McMinn, Esq., B.A., I.C.S. (retired).
Shams-ul-Ulama Maulana Shibli Nomani.
Henry Campbell Norman, Esq., M.A.
Lieut.-Col. Herbert Wilson Pilgrim, M.B., F.R.C.S., I.M.S.

Babu Chandra Narayan Singh, Rai Bahadur.
Kumar Kamlanand Singh.
G. Thibaut, Esq., Ph.D., C.I.E., F.A.S.B.

UNDER RULE 40.

William Barclay Brown, Esq., I.C.S.
Sir Ernest Cable, Kt.
Miss Rachel Nathaniel Cohen, M.B., F.R.C.S.
Lieut.-Col. Dirom Grey Crawford, I.M.S.
Golap Shanker Dev-Sharman, Esq., F.T.S., M.R.A.S.
Emanuel Mano Loffler, Esq.
Sir John Ontaria Miller, C.S.I., I.C.S.
Sir John Stanley, Kt., K.C.I.E., K.C.

ELLIOTT GOLD MEDAL AND CASH.

RECIPIENTS.

1893 Chandra Kanta Basu.
1895 Yati Bhusana Bhaduri, M.A.
1896 Jnan Saran Chakravarti, M.A.
1897 Sarasi Lal Sarkar, M.A.
1901 Sarasi Lal Sarkar, M.A.
1904 { Sarasi Lal Sarkar, M.A.; Surendra Nath Maitra, M.A.
1907 Akshoyakumar Mazumder.
1911 { Jitendra Nath Rakshit.; Jatindra Mohan Datta.
1913 { Rasik Lal Datta.; Saradakanta Ganguly.; Nagendra Chandra Nag.; Nilratan Dhar.

BARCLAY MEMORIAL MEDAL.

RECIPIENTS.

1901 E. Ernest Green, Esq.
1903 Major Ronald Ross, F.R.C.S., C.B., C.I.E., F.R.S., I.M.S. (retired).
1905 Lieut.-Colonel D. D. Cunningham, F.R.S., C.I.E., I.M.S. (retired).
1907 Lieut.-Colonel Alfred William Alcock, M.B., LL.D., C.I.E., F.R.S.
1909 Lieut.-Colonel David Prain, M.A., M.B., LL.D., F.R.S., I.M.S. (retired).
1911 Dr. Karl Diener.
1913 Major William Glen Liston, M.D., C.I.E., I.M.S.

[APPENDIX.]

ABSTRACT STATEMENT

OF

RECEIPTS AND DISBURSEMENTS

OF THE

ASIATIC SOCIETY OF BENGAL

FOR

THE YEAR 1914.

STATEMENT

1914. *Asiatic Society*

Dr.

	Rs. As. P.	Rs. As. P.
To Establishment.		
Salaries	6,398 9 11	
Do. (Officer in charge for Researches in History, Religion, Ethnology and Folk-lore in Bengal)	3,900 0 0	
Commission	597 7 7	
Pension	340 0 0	
Grain Allowance	91 0 0	
		11,327 1 6
To Contingencies.		
Stationery...	132 9 0	
Taxes	1.495 0 0	
Postage	778 5 3	
Freight	238 2 5	
Auditing	150 0 0	
Lights and Fans	326 9 9	
Insurance	343 12 0	
Petty Repairs	122 2 2	
Miscellaneous	561 12 6	
		4,148 5 1
To Library and Collections.		
Books	812 15 6	
Binding	990 8 0	
		1,803 7 6
To Publications.		
Journal and Proceedings and Memoirs ...	11,862 10 3	
To printing charges of Circulars, etc. ...	1,305 5 9	
		13.168 0 0
Indian Science Congress		845 14 0
Furniture		121 8 0
Government Grant		40,000 0 0
Interest on Government Paper		4,200 0 0
To Personal Account (write-off and miscellaneous) ...		344 5 6
To Extraordinary Expenditure.		
Royal Society's Scientific Catalogue		10,077 0 2
Balance		1,96,630 4 3
Total Rs. ...		2,82,665 14 0

No. 1.

of Bengal. *1914.*

Cr.

	Rs. As. P.	Rs. As. P.
By Balance from last Report		2,41,332 7 5
By Cash Receipts.		
Interest on Investments	7,237 9 10	
Rent of Rooms	600 0 0	
Publications sold for cash	286 2 0	
Allowance from Government of Bengal for the publication of papers on Anthropological and Cognate subjects ...	2,000 0 0	
Do. do. Chief Commissioner of Assam	1,000 0 0	
Do. do. Government of Bengal for Researches in History, Religion, Ethnology, and Folklore in Bengal ...	3,600 0 0	
Indian Science Congress	738 0 0	
Miscellaneous	146 1 9	
		15,607 13 7
By Extraordinary Receipts.		
Subscriptions to Royal Society's Scientific Catalogue		11,416 11 0
By Personal Account.		
Admission fees	880 0 0	
Members' subscription	10,707 0 0	
Subscriptions to the Journal and Proceedings and Memoirs	1,752 0 0	
Sales on credit	460 5 0	
Compound Subscriptions	500 0 0	
Miscellaneous	9 9 0	
		14,308 14 0
Total Rs. ...		2,82,665 14 0

R. D. Mehta,

Honorary Treasurer,
Asiatic Society of Bengal.

STATEMENT

1914. Oriental Publication Fund, No. 1, in

Dr.

To Cash Expenditure.

	Rs. As. P.	Rs. As. P.
Salaries	1,883 3 7	
Commission	19 10 2	
Postage	173 10 3	
Editing	1,684 0 0	
Contingencies	75 9 3	
Stationery	2 13 6	
Freight	71 7 4	
Fan and Light	33 10 0	
Grain allowance	17 2 0	
Printing	11,096 13 6	
		15,057 15 7
Balance		3,035 9 3
Total Rs. ...		18,093 8 10

STATEMENT

1914. Oriental Publication Fund, No. 2, in

Dr.

To Cash Expenditure.

	Rs. As. P.
Printing charges	2,877 1 0
Balance	3,104 13 0
Total Rs. ...	5,981 14 0

No. 2.

Acct. with the Asiatic Soc. of Bengal. 1914.

Cr.

	Rs. As. P.	Rs. As. P.
Balance from last Report		7,126 14 1
By Cash Receipts.		
Government Allowance	9,000 0 0	
Publications sold for cash	395 4 3	
Advances recovered	72 9 6	
		9,467 13 9
By Personal Account.		
Sales on credit		1,498 13 0
Total Rs. ...		18,093 8 10

R. D. Mehta,
Honorary Treasurer,
Asiatic Society of Bengal.

No. 3.

Acct. with the Asiatic Soc. of Bengal. 1914.

Cr.

	Rs. As. P.
Balance from last Report	2,981 14 0
By Cash Receipts.	
Government Allowance	3,000 0 0
Total Rs. ...	5,981 14 0

R. D. Mehta,
Honorary Treasurer,
Asiatic Society of Bengal.

STATEMENT

1914. Oriental Publication Fund, No. 3, in

Dr.

To Cash Expenditure.

	Rs.	As.	P.
Printing charges	652	0	0
Balance	1,855	3	6
Total Rs.	2,507	3	6

STATEMENT

1914. Sanskrit Manuscript Fund in Acct.

Dr.

To Cash Expenditure.

	Rs.	As.	P.	Rs.	As.	P.
Salaries	1,708	1	3			
Postage	19	6	0			
Contingencies	0	13	0			
Stationery	2	13	6			
Purchase of Manuscripts	395	12	3			
Insurance	125	0	0			
Grain allowance	14	0	0			
Lights and Fan	33	9	9			
				2,299	7	9
Balance				4,570	3	0
Total Rs. ...				6,869	10	9

No. 4.

Acct. with the Asiatic Soc. of Bengal. 1914.

Cr.

	Rs.	As.	P.
Balance from last Report	507	3	6
By Cash Receipt.			
Government Allowance	2,000	0	0
Total Rs.	2,507	3	6

R. D. Mehta,
Honorary Treasurer,
Asiatic Society of Bengal.

No. 5.

with the Asiatic Society of Bengal. 1914.

Cr.

	Rs.	As.	P.	Rs.	As.	P.
Balance from last Report				3,665	6	9
By Cash Receipts.						
Government Allowance	3,200	0	0			
Publication sold for cash	4	4	0			
				3,204	4	0
Total Rs. ...				6,869	10	9

R. D. Mehta,
Honorary Treasurer,
Asiatic Society of Bengal.

STATEMENT

1914. Arabic and Persian MSS. Fund in

Dr.

To Cash Expenditure.

	Rs. As. P.	Rs. As. P.
Travelling charges	181 1 6	
Salaries	2,102 0 9	
Contingencies	0 10 0	
Stationery...	5 12 0	
Insurance	31 4 0	
Purchase of Manuscripts	31 4 0	
Binding	40 8 0	
Grain allowance	5 0 0	
		2,397 8 3
Balance		3.949 2 7
Total Rs. ...		6,346 10 10

STATEMENT

1914. Bardic Chronicle MSS. Fund in

Dr.

To Cash Expenditure.

	Rs. As. P.	Rs. As. P.
Salary	3,833 5 3	
Printing	138 4 0	
		3 971 9 3
Balance		2,166 10 9
Total Rs. ...		6,138 4 0

No. 6.

Acct. with the Asiatic Soc. of Bengal. 1914.

Cr.

	Rs.	As.	P.
Balance from last Report	1,346	10	10
BY CASH RECEIPT.			
Government Allowance	5,000	0	0
TOTAL Rs. ...	6,346	10	10

R. D. MEHTA,
Honorary Treasurer,
Asiatic Society of Bengal.

No. 7.

Acct. with the Asiatic Soc. of Bengal. 1914.

Cr.

	Rs	As.	P.
Balance from last Report	138	4	
BY CASH RECEIPT.			
Government allowance	6,000	0	0
TOTAL Rs. ...	6,138	4	0

R. D. MEHTA,
Honorary Treasurer,
Asiatic Society of Bengal.

STATEMENT

1914. *Personal*

Dr.

	Rs. As. P.	Rs. As. P.
To Balance from last Report		4,688 7 11
To Cash Expenditure.		
Advances for purchase of manuscripts, etc. ...	2,397 2 10	
To Asiatic Society	14,308 14 0	
,, Oriental Publication Fund, No. 1 ...	1,498 13 0	
		18,204 13 10
Total Rs. ..		22,893 5 9

STATEMENT

1914. *Invest-*

Dr.

	Value. Rs. As. P.	Cost. Rs. As. P.
To Balance from last Report	2,48,700 0 0	2,45,563 8 10
Total Rs. ...	2,48,700 0 0	2,45,563 8 10

Funds.	Permanent Reserve.						Temporary Reserve.						Total Cost.		
	Value.			Cost.			Value.			Cost.					
	Rs.	A.	P.	Rs.	A.	P.	Rs.	A.	P.	Rs.	A.	P.	Rs.	A.	P.
Asiatic Society ...	1,65,500	0	0	1,64,185	9	8	36,200	0	0	34,392	7	2	1,98,578	0	10
Building Fund ...	45,600	0	0	45,586	2	0	...	...	...	...	...	...	45,586	2	0
Trust Fund ...	1,400	0	0	1,399	6	0	...	...	...	...	...	...	1,399	6	0
Total Rs. ...	2,12,500	0	0	2,11,171	1	8	36,200	0	0	34,392	7	2	2,45,563	8	10

No. 8.

Account. *1914.*

Cr.

		Rs. As. P.	Rs.	As.	P.
By Cash Receipts		...	16,416	10	0
,, Asiatic Society			344	5	6

By Balance.	Due to the Society.			Due by the Society.		
	Rs.	As.	P.	Rs.	As.	P.
Members ...	4,881	12	6	157	12	3
Subscribers ...	...	...	...	24	0	0
Employés ...	30	0	0	100	0	0
Oriental Publication Fund, No. 1 ...	432	0	0	...	...	...
Sanskrit MSS. Fund ...	300	0	0	...	...	...
Arabic and Persian Fund ...	250	0	0	...	...	...
Dr. L. P. Tessitori	500	0	0	...	...	...
Miscellaneous ...	354	2	0	333	12	0
	6,747	14	6	615	8	3

	Rs.	As.	P.
...	6,132	6	3
TOTAL Rs. ...	22,893	5	9

R. D. MEHTA,

Honorary Treasurer,
Asiatic Society of Bengal.

No. 9.

ment. *1914.*

Cr.

	Value. Rs.	As.	P.	Cost. Rs.	As.	P.
By Balance	2,48,700	0	0	2,45,563	8	10
TOTAL Rs. ...	2,48,700	0	0	2,45,563	8	10

R. D. MEHTA,

Honorary Treasurer,
Asiatic Society of Bengal.

STATEMENT

1914. *Trust*

Dr.

	Rs. As. P.	Rs. As. P.
To Pension	44 0 0	
,, Commission for realising interest ...	0 4 0	
		44 4 0
Balance		1,473 3 10
TOTAL Rs. ...		1,517 7 10

STATEMENT

Cash

Dr.

	Rs. As. P.	Rs As. P.
To Balance from last Report		8,315 3 8
RECEIPTS.		
To Asiatic Society	27,024 8 7	
,, Oriental Publication Fund, No. 1 ...	9,467 13 9	
,, Do. do. No. 2 ...	3,000 0 0	
,, Do. do No. 3 ...	2,000 0 0	
,, Sanskrit Manuscripts Fund	3,204 4 0	
,, Arabic and Persian MSS. Fund ...	5,000 0 0	
,, Building Fund	45,600 0 0	
,, Personal Account	16,416 10 0	
,, Bardic Chronicle MSS. Fund	6,000 0 0	
,, Trust Fund	49 0 0	
		1,17,762 4 4
TOTAL Rs. ...		1,26,077 8 0

No. 10.

Fund. *1914.*

Cr.

	Rs.	As.	P.
Balance from last Report	1,468	7	10
Interest	49	0	0
TOTAL Rs. ...	1,517	7	10

R. D. MEHTA,
Honorary Treasurer,
Asiatic Society of Bengal.

No. 11.

Account.

Cr.

EXPENDITURE.

	Rs.	As.	P.	Rs.	As.	P.
By Asiatic Society	85,691	4	3			
" Oriental Publication Fund, No. 1 ...	15,057	15	7			
" Do. do. No. 2 ...	2,877	1	0			
" Do. do. No. 3 ...	652	0	0			
" Sanskrit MSS. Fund ...	2,299	7	9			
" Arabic and Persian MSS. Fund ...	2,397	8	3			
" Building Fund	13	14	0			
" Personal Account	2,397	2	10			
" Bardic Chronicles MSS. Fund ...	3,971	9	3			
" Trust Fund	44	4	0			
				1,15,402	2	11
Balance				10,675	5	1
TOTAL Rs. ...				1,26,077	8	0

R. D. MEHTA,
Honorary Treasurer,
Asiatic Society of Bengal.

STATEMENT

1914. Building Fund in Account with

Dr.

To Cash Expenditure.

			Rs.	As.	P.
Commission for realising interest	...	...	13	14	0
Balance	...	...	45,586	2	0
Total Rs.		...	45,600	0	0

STATEMENT

1914. Balance

LIABILITIES.

		Rs.	As.	P.	Rs.	As.	P.
Asiatic Society	...	1,96,630	4	3			
Oriental Publication Fund, No. 1...	...	3,035	9	3			
Do. do. No. 2...	...	3,104	13	0			
Do. do No. 3...	...	1,855	3	6			
Sanskrit MSS. Fund ...	...	4,570	3	0			
Arabic and Persian MSS. Fund ...	...	3,949	2	7			
Bardic Chronicles MSS. Fund ...	...	2,166	10	9			
Building Fund	...	45,586	2	0			
Trust Fund	...	1,473	3	10			
					2,62,371	4	2
Total Rs. ...					2,62,371	4	2

We have examined the above Balance Sheet and the appended detailed Accounts with the books and vouchers presented to us, and certify that it is in accordance therewith, correctly setting forth the position of the Society as at 31st December, 1914.

Calcutta,
2nd March, 1915.

Meugens, King & Co.,
Chartered Accountants.

No. 12.

the Asiatic Society of Bengal. 1914.

Cr.

By Cash Receipts.

	Rs.	As.	P.	Rs.	As.	P.
Government Grant	40,000	0	0			
Interest	5,600	0	0			
				45,600	0	0
Total Rs. ..				45,600	0	0

R. D. Mehta,
Honorary Treasurer,
Asiatic Society of Bengal.

No. 13.

Sheet. 1914.

ASSETS.

	Rs.	As.	P.	Rs.	As.	P.
Personal Account	6,132	6	3			
Investments . ..	2,45,563	8	10			
Cash Accounts	10,675	5	1			
				2,62,371	4	2
The Government Pro. Note at the Bank of Bengal's Safe Custody Account Cashier's Security Deposit, Rs. 500						
Total Rs. ...				2,62,371	4	2

R. D. Mehta,
Honorary Treasurer,
Asiatic Society of Bengal.

The Second Indian Science Congress.

The Second Indian Science Congress was held in Madras on January 14th, 15th, 16th, 1915, under the Presidency of The Hon. Surgeon-General W. B. Bannermann, I.M.S., C.S.I. The membership numbered about 150 and some 60 papers were communicated, a list of which is given below.

His Excellency Lord Pentland, Governor of Madras, was present at the Opening Meeting and welcomed the visitors in the following speech :—

I am glad to have this opportunity of saying a word of welcome to the Indian Science Congress from the Madras Presidency. I understand that the Congress is a new body, which owes its creation largely to the energy of one or two individuals, among whom Madras may claim Dr. Simonsen ; that it is somewhat on the lines of the British Association for the Advancement of Science, and that last year it held its first Meeting with much success in Calcutta, the results of that Meeting being a considerable accession of strength to its numbers. We hope the same result will follow this second Meeting now to be held in Madras. It is gratifying to Madras to know that the attendance, all things considered, is excellent, and particularly good from Bengal where the Association has struck its roots with some success

We are all aware that the value of such Meetings as this does not lie wholly in formal Meetings, and that the opportunities of intercourse are perhaps as valuable as the formal Meetings of such a Congress. It must be a great encouragement to the workers in science as well as in other branches occasionally to meet and compare results, to get to know one another, to have the many advantages of personal and social intercourse which a few days together must bring to isolated workers in so large a field, especially in so large an area as is represented by the term India. I trust that the few days the members will spend here may be fruitful in that respect. To-day we have the first of the formal Meetings and we all have in our hands the programme of this series of Meetings, which are to take place, and the papers which are to be read. A very wide field they cover. I note that in the Ethnography branch all the papers but one are by Indians. When we come to Zoology and Botany, Europeans take a greater share. In Chemistry we in Madras are glad to see associated with Dr. Simonsen Mr. Mudlagiri Nayak, one of our true research students, of whom, I think, we have two at the present time, one in Chemistry and one in Economics. So far as I am aware, none of our research students have as yet published any results. So we are glad to see this beginning in Mr. Mudlagiri Nayak being associated with this paper. We come to Physics and here we find Mr. C. V. Raman, another Madras man, whose interest in this matter, I think, deserves some remark, for it may offer some encouragement to other research students. Mr. Raman took his B.A. degree ten years ago and his M.A. three years later, and was the first student to get a first class in the Master of Arts Examination here in 1907. Then, going to the Finance Department, he has given much of his spare time to research work. All his research work, in fact, has been done in his spare time, and we know the merit of that work from the commendations which have been passed upon it by men of standing in the scientific world. All that, I think, gives encouragement to research students, and it is certainly an encouragement to us who are as a Government here desirous of encouraging research in every way in our power.

Then we come to Agriculture and Applied Science. I notice here that there are no papers on pure agriculture by Indian members of the Congress, and the papers on applied science are few, and fewer still of them are offered by Indians. I confess that to me personally this is a subject of great interest. I think it is a matter of great importance to the country. Though I am myself little qualified to express an opinion on it. I cannot help thinking that the considered opinion perhaps expressed on some later occasion on this subject by such a gathering as this must be of great value. It is curious that there should be so little research work done. It cannot be that the field is not large, it cannot be that the work has been done, because the field is enormous before us and the promise latent, of research work in this branch, is immeasurable. It cannot be also because the importance of research work is not realized. It may be suggested that research is not sufficiently encouraged. I hardly think in this Presidency that can be urged. We do all we can to encourage research work, and a great deal is done for the encouragement of instruction, elementary science instruction, and to encourage some foundation of general education for this purpose.

Wherever I go I see schools and colleges elaborately equipped for this purpose, and it is, therefore, of great interest and importance to us to have, I think, a clearer idea whether it is from lack of facilities that the absence of study of science and scientific research work later on is due, or whether it is due to some other cause. Of course one must realize that certain facilities are lacking, such as libraries, opportunities of intercourse, and so forth, but I cannot help feeling that whether we are waiting for capitalists to encourage the work, or whether there is a lack of desire in India for such work, the question is well worthy of attention.

I have not come here to speak. I have rather come to listen. I will not, therefore, digress further on speculation and enquiry. I will conclude as I began by expressing the hope and wish that the Congress may have here a thoroughly successful series of Meetings, that its gatherings on this occasion may realize all its expectations, and that in time to come it will be more and more recognized as a useful body, which is desirous of giving to India the best that it can give from its wealth of knowledge and information. (*Loud applause*).

The President then delivered his Presidential Address entitled "The Importance of a Knowledge of Biology to Medical, Sanitary and Scientific Men working in the Tropics."

Your Excellency, Ladies and Gentlemen,—My first and most pleasing duty is to welcome to Madras the members of the Indian Science Congress. I trust our efforts to make you comfortable and at home have proved successful, and that you will enjoy your stay among us, and carry away with you pleasant recollections of Madras, the "withered beldame now, brooding on ancient fame," as Kipling has miscalled her; as well as derive much profit from the learned papers on our agenda.

My second duty is to thank your Committee for so honouring me as to elect me your President for this year. I recollect that I was one of those consulted by Dr. Simonsen as to the advisability of starting this Association of Scientists in India. I heartly approved of the scheme, but little thought I should ever be so honoured as to preside over one of its Meetings. At that time I was a practical worker in science, though a humble one, and could then, perhaps, have claimed a place in such a Meeting as this, but now, having been for the past three years entirely engrossed in administrative work, I have to some extent got out of touch with practical science, and to that degree I feel some diffidence in addressing you.

Importance of Biology.

When casting about for a suitable subject for an address to this body of scientists gathered together from all the ends of the Indian earth, I

thought first of all that I must choose a subject on which I could speak from practical experience and, therefore, without too much preparation, for I had little time for such, and, secondly one which would be of interest to dwellers in India. Such a subject I hope I have found in "The Importance of a Knowledge of Biology to Medical, Sanitary and Scientific Men Working in the Tropics." I would commend this subject to all my hearers, dwellers as they are in India; it is a means of warding off depression and of retaining cheerfulness and youthful interest in this "land of regrets." One eminent instance of the efficacy of this method must be well known to some here I refer to the late Mr. E. H. Aitken, familiar to many of us, I am sure, under his pen name of "E. H. A." "Every hobby is good," says 'E.H.A'—"a sign of good and an influence for good."

Scourges of India.

It is difficult at the present day to realize our ignorance of disease causation in the early eighties, and I have not time to do more than indicate a few of the more important *lacunæ* which have since been filled up. With regard to diseases which have caused, and still cause dreadful disaster in India, I would only mention a few, such as malaria, cholera, dysentery, plague.

What did we know about the true meaning and actual cause of any of these Indian scourges? Absolutely nothing. Malaria was supposed to be due to "an emanation," cholera to a "blue mist" or other mysterious phenomenon, dysentery was due to bad water, and as to plague, we were not taught anything at all about it, because it was thought to have disappeared from the civilised world, and to be confined to the back slums of Oriental cities in the interior of China or Mesopotamia, or to the remote villages of Kumaon in the far-off Himalayas. Now, owing to the indefatigable research of a host of workers, many of whom carried out their investigations in India, we have accurate knowledge of the actual living things, whether belonging to the animal or to the vegetable kingdom, that cause these diseases. We have studied their life-histories, and that of the various hosts in which they live; we have found out how man becomes infected by these minute parasites, and can, in consequence, take measures of defence against their attacks. That these researches have led to much good and contributed to the amelioration of man's life in India, cannot be questioned. The vital statistics annually published by the Government of India bear eloquent testimony to this, as evinced by the diminished death rates from these dreadful diseases. Especially is this noticeable in the case of the jail population and of the Indian Army, both European and Indian, these being composed of bodies of men living under intelligent direction and control, and, therefore, being the first to profit by the new knowledge. These lessened mortality rates are not concoctions of Government officials, they are facts; and as the national poet of Scotland has said:—"Facts are chiels that winna ding and downa be disputed."

Ignorance of the Common People.

Some of you may say:—If these things are so, if we know the cause of all these scourges, and the proper measures to take in order to prevent them, how is it that so many thousands still die of these diseases, and that certain parts of the country still remain barely habitable on account of their presence?" The answer is, I believe, a very simple one, and it is this—"Ignorance, gross ignorance." Ask yourselves:—"How many people in India know about these diseases, other than as visitations of malign spirits to be warded off by incantations and magic?" The answer is:—"Very few, when compared with the teeming millions inhabiting this great land of India." Ask any of the

doctors or sanitarians, whose business it is to look after the health of our people in town and country, and they will tell you how hopeless their task is by reason of the dense and unimaginable ignorance of the common people. Try to get villagers to understand that malaria is due to the bites of mosquitoes, and that attacks of fever can be avoided by the use of mosquito nets and by the abolition of mosquito-breeding pools in the vicinity of their houses, and you will begin to realize how hard the task of the sanitarian is. He is up against the ignorance of centuries, which nothing but education can remove, and it can only be removed by the slow process of teaching the rising generation. Here, ladies and gentlemen, is a way in which all educated persons can help.

Help from the Educated Classes.

What is wanted is a band of voluntary workers who will go to the uneducated masses of this country and teach them the rudiments of hygiene, as you would teach them to a small child not yet able to read. Teach them by illustration and example. Show them by the magic lantern the actual parasite of malaria, and the life-history of the mosquito, and by ocular demonstration show them that mosquitoes do actually arise from the wrigglers in the pools about their doors. You may by a long course of such simple lessons eventually get the common folk to believe that there is something in your theories, and when that day comes we shall see a very much more healthy and vigorous India than exists to-day.

Hygiene in Schools.

Another way in which you can help is by insisting that hygiene should be taught in all schools from the most elementary to the very most advanced. Why should such an excellent book as "Life, Light and Cleanliness" not be used as a text book in all our primary schools? In this book are set forth in most entertaining fashion, and in the form of tales modelled on the Arabian Nights, the elementary facts of hygiene regarding housing, water-supply, cleanliness of village sites, and the prevention of such diseases as malaria, cholera and plague. It is a most interesting book, and I defy anyone who takes it up to lay it down until he has read the story of Devi Das the Sepoy and how he brought cholera with him to his native village when he visited it on furlough; or the story of the wise traveller, who, by the help of the local diamond merchants, saved the Rajah's town from plague. I commended this book some time ago to a friend—a Member of the Legislative Council, and Chairman of a large Municipal town—and he told me that he sat up till 2 in the morning reading it, he found it so amusing; he has now introduced it into all Primary Schools in his Municipality. This book has been translated by the Madras Government into all the vernaculars of the Presidency, and recommended to the use of their officials, yet in my touring I have never, up till now, found an official, either European or Indian, who had ever heard of it; nevertheless, they must all have the Government recommendation of it filed away in their various offices.

Revenue Officers and Sanitation.

Here, ladies and gentlemen, is another way in which educated people may be useful, by inducing the official to take some interest in other things than Revenue matters and the routine of his office. I do not mean to imply that Revenue officials neglect sanitation; far from it, most of them are intensely interested in it, but being very busy men and necessarily much tied to their offices, they are apt to miss such recommendations as the one above referred to. You will find them very grateful for such information, I have proved it by personal

experience. You will also find them very ready to accept help, if offered in a practical way. I can point to one such instance in this Presidency, where in a sorely-smitten town you will find the whole of the plague-preventive measures being run by an Honorary Plague Officer, and well run too. His only reward, and I am sure he deems it ample, is the knowledge that he has saved the lives of hundreds of his fellow townsmen.

The Plague Epidemic.

But I find that I have strayed from the strict letter of my text, which was to prove the importance of a knowledge of Biology to the medical and scientific man in India. I cannot, I think, do better than illustrate what I mean by reference to the history of plague in India during recent years.

Before plague broke out in Bombay in October, 1896, no medical man in India imagined that the disease had any practical significance for him. He regarded it as of the nature of an antiquarian curiosity to be looked for only in remote Himalayan villages, and not to be feared in the civilised country of Hindustan. One man only in India had issued warning to all Government Medical Officers within his jurisdiction, to be prepared for the introduction of plague from China, where it had broken out in epidemic form in 1894. This man was Colonel W. G. King, C.I.E., I.M.S., at that time Sanitary Commissioner of Madras, after whom the King Institute of Preventive Medicine at Guindy has been named by a grateful Government.

It stands to reason, then, that when plague entered Bombay it was some time before it was diagnosed, and still more time had to elapse before anyone knew what to do to arrest its progress. We had still to acquire our present knowledge of its nature and spread, of its curious seasonal prevalence, of its association with rats, of its non-infectious nature. Small wonder then, that our efforts at prevention proved a costly and miserable failure, until the researches of Haffkine placed in our hands the well-known anti-plague vaccine, and the work of the Plague Commission and others showed us what to do in the way of hygienic precaution.

The Plague Rat.

It early became evident that rats had something to do with the spread of plague, and the circumstantial evidence, by which their complicity was established, forms an interesting chapter in the history of the disease, which, however, I have not time to touch on now. When suspicion fell on the Indian rat, it was natural for those of us who were investigating the cause of the spread of plague to enquire about them. What was known about rats in India? Very little. As Major Liston said in a paper read before the Bombay Natural History Society in 1901:—"I have tried to classify (more or less casually, I must admit) the Indian town and village rats, but I have completely failed. There appear at first sight to be many species. I visited the British Museum, when at Home, and saw Mr. Oldfield Thomas on this subject, and he assured me that any rat I sent from Bombay would be likely to be either a *mus rattus* or *mus decumanus*. I was discussing this matter the other day with a member of this Society, Mr. Aitken, and he suggested that it might be as easy to classify pie-dogs as the rats in Bombay." That it was necessary to classify the rats is evident when one considers the very different habits of these two species which are mainly responsible for the spread of plague in India. The one, *mus rattus*, is a constant inhabitant of our houses and bedrooms, in fact almost a domestic animal like a cat, and the other is a wild and shy creature inhabiting sewers and the ground floors only of our cities, and in consequence comes more rarely in contact with man. It was doubtless because the rats in Britain are of the species *mus decumanus* that plague did not spread in Glasgow

when introduced some 12 years ago. It is a fact that plague-infected rats were caught in the cellars and sewers of Glasgow for two years subsequent to that small outburst of the disease among the human inhabitants, and yet no further human plague occurred. The rats there were living apart from man, not in his very bedroom as they do in India. Here, once more, we see the importance of a knowledge of Biology to the medical man.

Fighting Plague.

When plague first enters a District it does not attack men, it attacks rats, and it is only after these have been exterminated, or driven away, for rats have the sense to emigrate in such cases—that it extends to man. Having established the connection of rats with plague, the further problem arose. How did this rat-disease plague get from the rats to men? Again, circumstantial evidence, accumulated from an epidemiological study of plague gave the clue we were in search of, and the working out of the connection between rat fleas and plague was one of the main achievements of the Plague Laboratory in Bombay, of which I had the honour to be the Director during that period.

The story of its working out by my friend Major Glen Liston, the present able Director of that Laboratory, may well be styled "a romance of medicine." In the course of his study of the rats of Bombay, Major Liston soon discovered that the flea parasites of these rats differed from those of either man or of cats and dogs.

The Flea.

Nothing, practically, was at this time known of fleas from the naturalist's point of view, so Major Liston submitted his specimens to the Hon'ble Mr. Charles Rothschild, the greatest living authority on the Siphonaptera, and he identified the Bombay rat flea as *Pulex* (or as now known *Xenopsylla Cheopis*) a flea first found by him in Egypt (hence the name) and now known as the commonest rat-flea of the hotter portions of the world.

As the naturalists among you know, parasites of one species of animal will not readily attach themselves to those of a widely different species. Hence the question arose: —Will *Xenopsylla Cheopis* bite man? This question Liston was enabled to answer in the affirmative by the following means:—In March, 1903, the guinea pigs in the Zoological Gardens at Bombay were attacked by plague, and on investigating the matter Liston found that the animals, and especially those that were sick, were infested with fleas, though as a rule none are to be found on guinea pigs. On enquiry it was ascertained that dead rats had recently been picked up near the guinea pig cages, and Liston came to the conclusion that, in the absence of their natural hosts, the fleas had attacked the guinea pigs, and thus infected them with plague. He, therefore, hit on the happy idea of using guinea pigs for trapping fleas in plague-infested places, and of thus proving their presence in rooms or huts from which plague patients had been removed.

If the *Xenopsylla Cheopis* would attach itself to guinea pigs in the absence of its natural host—the rat—might it not also attack man in similar circumstances? This he proved first in the chawl in Bombay where rats had been observed to die in large numbers, and from which they afterwards disappeared. Immediately after this disappearance the inhabitants of the crowded, barrack-like building were so troubled by the attentions of the fleas, that they had to take to the verandahs to get a little sleep. A few days later two of their number developed plague, and on collecting fleas from the others, Major Liston was astonished to find that out of 30, so caught, 14 were rat-fleas. In a certain proportion of these fleas plague bacilli were found on dissection.

In this chawl then we had evidence of the following sequence of events:—

1. Plague among rats, and their sudden disappearance.
2. A few days later attack of the human residents by the fleas deprived of their natural host—the rat.
3 Human plague among the inhabitants so attacked.

GOVERNMENT EXPERIMENTS.

Evidence such as this was sufficiently convincing to enable us to approach the Bombay Government for a grant of money to erect a range of experimental godowns, or huts, in which to carry out investigations on the possibility of the transmission of plague from one animal to another by means of plague-infected fleas. In these godowns were carried out the well-known animal transmission experiments, which proved that plague really is communicated from rat to rat, and from rat to man by means of fleas, and that this is the common means of plague, spread in India. That these convincing experiments were ultimately carried out by the members of the Plague Commission, who at this point entered on the scene, and of whom Liston was one, in no way detracts from the credit due to Major Liston, for it was by his persevering and ingenious efforts that this flea theory, at first started by M. Simon, of the Pasteur Institute during a visit to India in 1898, and definitely rejected by the first Plague Commission, was placed on such a basis as to be practically the only possible theory on which to work.

MALARIA, ETC.

Here again we see the importance to be attached to a knowledge of Biology by medical men. I could go on multiplying instances of the value of this knowledge, I could mention the names of Sir Ronald Ross, who by a study of mosquitoes, and the malaria parasite, proved the transmission of malarial fever in birds by the bites of these insects: Colonel Donovan, who owes to his knowledge of protozoology his celebrity as the co-discoverer with Sir William Leishman of the animal parasite of Kala Azar; Major Patton, whose enthusiastic researches into entomology have led him to the theory of transmission of Kala Azar by the bed bug, *Cimex rotundatus*; Captain Mackie, who from a study of the body louse, *Pediculus vestimentorum*, came the conclusion that relapsing fever was spread by this insect; Dr. R. Rao, of Bombay, whose capacity in this direction has led to valuable discoveries in Kala Azar.

It is perhaps pardonable in a Madras man like myself to draw attention to the fact that Sir Ronald Ross, Donovan, Liston and Patton all belong to the Madras Medical Department, and that Dr. Rao, though working in Bombay, is a South Canara man, and therefore also a Madrasi.

You will notice that of the names just mentioned all, with one exception, are or were Government servants. They were thus in receipt of an assured income, and could carry out research work without anxiety for their daily bread. The one exception is Dr. Rao, of Bombay, who though holding a lectureship in the Medical College, is to all intents and purposes an independent medical practitioner.

ENCOURAGING MEDICAL RESEARCH.

I trust my friend Dr. Rao will forgive me for bringing forward his private circumstances in this public manner, but I do so with the hope that measures may be taken by the wealthy men of India to encourage medical research among their fellow-countrymen. It has been said that Indians have not yet distinguished themselves as they might in the domain of medical research. That is no doubt true, but the reason is not far to seek. The leisured and wealthy classes in India do not send

their sons to our Universities in any numbers, and when they do, certainly not with the idea that they should spend the rest of their lives in pure research work. Let us hope they will do so some day It is, therefore, among the sons of the middle class and often poor community that we must look for the men with capacity and inclination for such work.

But these are the very men who, not being in independent circumstances, must earn their living at the earliest possible time. They cannot therefore be expected to engage in scientfiic research which does not bring in money for daily bread or lead up to any permanent appointment. I would, therefore, appeal to our wealthy Indians to endow medical research, so that their poor but capable fellow-countrymen may have something to look forward to as reward for scientific toil. There are plenty of subjects for research which ought to be endowed, Chairs in our Medical Schools and Universities that ought to be established. All our Indian Universities are at present mere skeletons ; will no one here take up the rôle of beggar and try to extract a few lakhs of rupees from the hoards of his wealthy and aristocratic friends ? We know that there is plenty of money to be had when the heart of the nation is touched as witness the magnificent response to the appeals made for War Funds by H.E. the Viceroy and our own Governor of Madras. It must be your part, gentlemen of light and leading, to inspire similar enthusiasm in the good cause of University endowment. India wants to have, not only more Chairs and lectureships endowed, but also Research Scholarships or Fellowships established ; Fellowships available for the student and the research worker, so that he may live in reasonable comfort, and be able to devote his whole energy to the work without anxiety for those depending on him.

The Rajah of Pithapuram.

I should like here to point out that we in Madras have made a beginning in this direction owing to the enlightened liberality of the Rajah of Pithapuram, who has presented Rs. 50,000 for the expenses of an inquiry into diabetes, that fell disease which carries off so many of the best brain workers in this part of India. This is an example which I trust will often be followed in the future, it can lead to nothing but good for India and her peoples.

The National Medical Research Fund.

As an example of how this may best be done, I would invite attention to the recent establishment in Great Britain of a National Medical Fund, with an income last year of £56,000 derived from the Funds of the National Insurance Scheme of Mr. Lloyd George. This money, accruing from the penny paid in respect of each insured person under the National scheme, is to be applied to purposes of medical research. Mount Vernon Hospital, near London, has been purchased and will be fitted up for the reception of patients and research workers.

But the scheme has a much wider scope than merely the establishment of a Research Institute and hospital in London. A strong staff of scientists has been appointed. For Bacteriology there is Sir Almroth Wright, assisted by Captain S. R. Douglas, I.M.S. (retired) ; for Applied Physiology, Leonard Hill, assisted by Benjamin Moore, and Martin Flack ; for Bio-Chemistry and Pharmacology, H. H. Dale, assisted by G. Barger and A. J. Ewins ; for Statistics, John Brownlee ; and as Secretary, Dr. W. M. Fletcher. This staff has spent much time in the preparation of schemes of work to be undertaken at the various centres of medical research throughout the kingdom. To these various centres of research grants have been made for two objects ; firstly for the personal remuneration of the research workers, and secondly for the expenses of the investigation. For the first of these objects salaries have been fixed varying from £250 to £600 per annum for full-time assistants to the

Directors of the Laboratories, and also honoraria of £100 per annum for part-time workers. The whole scheme of research will be co-ordinated by the permanent staff and the Research Committee, and the result will be made available by publication in the ordinary scientific journals, or eventually by the issue of monographs on special subjects containing the contributions of the various men working on them. Meetings will likewise be arranged between workers upon the same or allied problems, so that overlapping may be avoided, ideas interchanged, and methods of work compared and checked. The following quotation is of interest to us in India, should we be able to start a similar co-ordinated scheme:—
"The opportunity which the National Medical Research Fund affords of encouraging and enabling a large number of young men in all parts of the kingdom to carry out definite researches under skilled direction appears to the Committee to give promise of the highest value to the future of medical research in the country. The war has, for the time being, obscured the prospect, but looking to its end the Committee would hope that in the future, by trial of many workers and by selection of the best, a continual supply of able investigators will be assured, to whom grants on a higher scale may be made.

Details of the Scheme.

Young extern workers, engaged for the first time by the Committee and working under supervision in some University or hospital laboratory, will be given to understand that satisfactory work will weigh largely with the Committee in offering them further and more important research work in the future. The Committee think that those who specially distinguished themselves in the work entrusted to them should be promoted to a special *cadre* of extern workers to whom continuous employment and a generous salary should be guaranteed for a term of years. Under such a process of selection the workers as well as the objects of the Committee would benefit, and future appointments of a more permanent kind, carrying pension rights, might be made from among this higher group of extern workers. By this means the Committee might hope to secure that the best of the younger men, who as matters now stand in this country are constantly exposed to the inducement to drift into professional practice soon after their research studentships or fellowships expire, will have the prospect of permanent employment in research work. The scales of pay and pension should not be inferior to those of the public medical services, and it would be better, in the interests of research, that a few of the best men should be well paid than that a larger number should be paid inadequately and left unpensioned."

Researches are to be undertaken at 14 centres in England, 3 in Scotland, 2 in Ireland, 1 in Wales and 1 at Davos Platz in Switzerland, and the subjects to be investigated cover the whole range of medical science. This splendid research scheme might well serve as a model for all interested in the advancement of Medical Science in India, for it is to advance in the healing art that India's millions must look for deliverance from the scourges of malaria, plague, cholera, dysentery and the hundred and one ailments that afflict them at present, and which we know they can be delivered from.

Prevention of Disease.

You will remember what our late beloved King-Emperor said with reference to tuberculosis:—"If preventible, why not prevented?" Ladies and gentlemen, we may say the same of all these diseases—"They are preventible, why are they not prevented?" For their prevention we require research and research workers. Research workers are, after all, human beings and must be able to support themselves and their families by their labours. Who will come forward and help us? India needs

this help, and we cannot look to Government for more than a small part of the money required Government have done magnificent work of late years in establishing laboratories, and subsidising research all over the land, but much more is required. We want Scholarships and Fellowships with pensions for our best research workers. Endowments for this purpose will do more to keep alive the memory of the donors, than the erection of chattrams or other traditional forms of charity. It will not merely do this but will confer an inestimable benefit on the inarticulate millions of India, who do not even know that they can be delivered from the various diseases that afflict them, and are hardly conscious of their existence.

An Indian Bureau of Public Health.

But we not only require research workers, we want an organization that will help to educate the people in the ordinary rules of health. There should be in each Presidency an official whose business it is to look after the hygienic education of the common people. He should be in charge of a Bureau of Public Health, and his work should consist in preparing pamphlets and popular lectures with lantern-slide illustrations, which could be lent to lecturers who would undertake to itinerate in the villages and talk to the common people. He should organize classes for the teachers in our Teachers' Colleges, and he should gather together and popularize information from every quarter. Such an official—who would have to be very specially selected—would do an immense amount of good in educating the people, and without education we can hope for very little advance along the road to health.

Until the usefulness of such a bureau is fully established, we can perhaps hardly expect much help from Government, for they have plenty to do with the public revenues, but I am quite sure they would view any endeavour to educate the masses with a sympathetic eye.

I have again, I am afraid, wandered far from the strict letter of my text, but my excuse must be that a knowledge of Biology is so important to all medical and scientific workers in India, and so intimately bound up with the welfare of the people of India, that I have been led on to talk of that most important subject. This subject lies very near my heart, for I have lived and worked among these people for 30 years and have known their sufferings and admired their quiet heroism.

At the Business Meeting held on the final day it was decided to hold the 1916 Congress in Allahabad and Prof. W. N. F. Woodland of the Muir Central College was requested to act as Honorary Secretary.

Papers communicated to the Congress.

Agriculture and Applied Science.

The Lines of Development of Indian Agriculture.—By Dr. H. H. Mann.

Chemical Entomology.—By Mr. F. M. Howlett.

Black Rot of Coffee caused by Hypochus (Pellicularia Koleroga, Cooke).—By Dr. L. Coleman.

Koleroga of the Areca Palm and related Plant Diseases caused by allied Species of the Genus Phytophthora.—By Dr. L. Coleman and Mr. K. Venkata Rao.

The Water-supply to Madras City.—By Mr. J. W. Madeley.

Appliances designed for the Exclusion of Storm Water and Silt from the Madras Sewerage System.—Mr. J. W. Madeley.

Physics.

Photographic Methods in the Study of Elastic Impact.—By Mr. C. V. Raman.

Photometry of Diffraction Patterns.—Mr. C. V. Raman.

A New Apparatus used in the Determination of Young's Modulus and the Measurement of Expansion at High Temperatures.—By Dr. E. P. Harrison.

Electric Discharge.—By Dr. D. N. Mallik.

On the Climate of Kodaikanal.—By Mr. C. Michie Smith, C.I.E.

Areal Waves generated by Impact.—By Dr. Ganesh Prasad.

Sun-Spots and Prominences.—By Mr. J. Evershed.

The Different Character of Spectrum Lines belonging to the same Series.—By Dr. T. Royds.

The Displacements at the Sun's Limb of Lines Sensitive to Pressure and Density.—By Mr. A. A. Narayana Iyer.

The Vibrational Form of Bowed Strings.—By Mr. S. Appaswami.

Hindu Mathematics with Special Reference to Bhaskaracharya and his Work.—By Mr. B. V. Sahai.

Chemistry.

Tautomeric Changes in Organic Thio-compounds through the Agency of Mercuric Nitrite, heavy Metallic Chlorides and Monochloracetic Acid.—By Prof. P. C. Ray, C.I.E.

Interaction of Dimercuriammonium Nitrite and Ethyl Iodide.—By Prof. P. C. Ray, C.I.E.

Studies in Alcoholysis.—By Prof. J. J. Sudborough.

Replacement of Sulphonic Acid Groups by Chlorine.—By Prof. J. J. Sudborough.

Researches on the Conversion of Aliphatic Nitrites into Nitro-compounds and the Reduction of Aliphatic Nitrites into Amines.—By Prof. P. Neogi and Mr. I. C. Chowhari.

Chromium Phosphate.—By Prof. A. F. Joseph and Mr. W. N. Rae.

An Apparatus for Determining the Compressibility of Gases at Low Temperature.—By Dr. H. E. Watson.

Studies of the Constitution of Bicyclic Terpenes.—By Mr. R. L. Datta.

Velocity of Ions at 0°.—By Mr. D. Bhattacharyya and Mr. N. Dhar.

Influence of Alternating Current on Overvoltage.—By Mr. J. D. Gosh.

Resolution of Sulphonyl Derivatives of Alanine.—By Profs. C. S. Gibson and J. L. Simonsen.

The Stereochemistry of Reduced Naphthoquinaldines.—By Profs. C. S. Gibson and J. L. Simonsen.

The Nitration of 3-Acetylamino-2-Methoxy Toluene.—By Prof. J. L. Simonsen and Mr. Mudlagiri Nayak.

Condensations with Monochloromethyl Ether.—By Prof. J. L. Simonsen.

Zoology.

The Future of Pearl Fisheries of Southern India.—By Mr. J. Hornell

The Recent Pearl Fishery at Tondi.—By Mr. J. Hornell.

Two new Species of Scorpion from Southern India.—By Dr. J. R. Henderson.

Caudal Autotomy and Regeneration in the Gecko.—By Prof. W. N. F. Woodland.

The Influence of Aluminium in the Growth of Certain Water Bacteria.—By Major J. W. Cornwall, I.M.S.

Some Zoanthids from Madras.—By Prof. K. Ramunni Menon.

Remarks on the Madras Species of Haplochilus.—By Mr. B. Sundara Raj.

Botany.

The Sugar-Cane.—By Dr. C. A. Barber.

The Insect Fertilisation of Flowers.—By Lt.-Col. Donovan, I.M.S.

Grafting the Mango Inflorescence.—By Dr. W. Burns and Mr. S. H. Prayag.

Note on the Flora of the South Indian Highlands.—By Prof. P. F. Fyson.

Observations on the Defoliation of some Madras Trees.—By Mr. M. C. Parthasarathy Aiyangar.

Some Mendelian Characters of the Paddy Plant.—Mr. F. R. Parnell.

The Depressed Habit in Sugar Canes.—By Dr. C. A. Barber and Mr. T. S. Venkataraman.

The Madras Flora.—By Mr. C. Tadulingam.

Ethnography.

Some Aspects of Ethnographic Work.—By Mr. H. V. Nanjundayya, C.I.E.

Anthopometric Notes of Calcutta Eurasians.—By Dr. N. Annandale.

Indian Sociology as a Theoretical and Applied Science.—By Dr. S. V. Ketkar.

Totem Worship amongst the Oraons.—By Mr. S. C. Roy.

Smartha-Vicharam or Purity Trial among the Nambutiris. —By Mr. N. S. Subramanya Aiyer.

Viragals and Mastigals.—By Mr. T. A. Gopinatha Rao.

Prehistoric Monuments of the Cochin State.—By Mr. L. K. Anantakrishna Aiyer.

Vettuvans of North Malabar.—By Mr. L. K. Anantakrishna Aiyer.

Geology.

The Geological History of Southern India.—By Dr. W. F. Smeeth.

On the Crystalline Limestone from Daltonganj.—By Mr. H. C. D. Gupta.

Certain Basic Dykes in Travancore.—By Mr. E. Masillamani.

An Artesian Boring at Cochin.—By Mr. Nowroji.

7. So-sor-thar-pa; or, a Code of Buddhist Monastic Laws: Being the Tibetan version of Prātimokṣa of the Mūla-sarvāstivāda School.

Edited and translated by MAHĀMAHOPĀDHYĀYA SATIS CHANDRA VIDYABHUSANA, M.A., PH.D., M.R.A.S., F.A.S.B.

PREFACE BY THE EDITOR AND TRANSLATOR.

The work, the Tibetan text and an English translation of which are embodied in this volume, is named So-sor-thar-pa in Tibetan, corresponding to Po-lo-ti-mo-ca in Chinese, Prātimokṣa in Sanskrit and Pātimokkha in Pali, which signifies literally "disburdenment of each individual's sins," but includes in fact a complete code of monastic laws. The Tibetan text, which forms a part of volume *ca* of the Kangyur, has not, so far as I know, been printed or translated anywhere. A short summary of the So-sor-thar-pa is contained in the Mahāvyutpatti,[1] a copy of which with an English translation was prepared by Alexander Csoma de Koros. A reference to it is also found in the "analysis of the Dulva" published by the same scholar in the Asiatic Researches, Vol. XX. The Tibetan text itself was however not an original work but was a mere translation of a Sanskrit work called Prātimokṣa which is now lost. From the colophon it appears that the translation was prepared by a Buddhist monk of Kāśmīra, named Jina Mitra, with the co-operation of the State-interpreter of Tibet named Kluḥi-rgyal-mtshan, a native of the town of Cog-gru. As Jina Mitra was a great master of the Vinaya of the Ārya Mūla-sarvāstivāda school, it is presumed from the colophon that the Prātimokṣa translated by him into Tibetan belonged to that school.

It cannot be definitely ascertained when the Prātimokṣa of the Ārya Mūla-sarvāstivāda school was first composed. The composition of this Prātimokṣa must have been undoubtedly later than that of the Dhammapada and the Mahāparinibbāna Sutta as it contains at the beginning and the end verses quoted from those works. The Ārya Mūla-sarvāstivāda school existed however as early as the time of King Kaniṣka about 78 A.D.

Jina Mitra was a native of Kāśmīra and author of a work on Logic called Nyāyabindu-piṇḍārtha. He together with Sarvajñadeva, Dānaśīla and some other Indian Paṇḍitas visited Tibet and translated Sanskrit books into Tibetan

[1] This work is being published by the Asiatic Society of Bengal under the joint editorship of Dr. E. D. Ross, C.I.E., and M. M. Dr. Satis Chandra Vidyabhusana.

during the reign of Kri-ral, better known as Ral-pa-can.[1] As this king was born in 864 A.D., Jina Mitra must have flourished at the close of the 9th century A.D., when So-sor-thar-pa, the Tibetan version of the Prātimokṣa, was prepared.

For the last 1100 years the So-sor-thar-pa has received a great ovation in Tibet. In each respectable monastery it is recited with reverence by the senior Lama on the full moon and new moon days when all other Lamas assemble together to listen to the recitation. This So-sor-thar-pa which contains a set of rules to be observed by monks is often called "Khrims," a code of laws, as distinguished from a later Tibetan work also called So-sor-thar-pa,[2] which explains "Cho-ga," the rites relative to the observance of the laws. This later work, which is frequently recited in monasteries in Tibet, is divided into five parts headed as follows:—

1. སྦྱོར་བའི་ཆོ་ག Sbyor-waḫi-cho-ga—the method of meeting together. This part explains the manner in which the monks are to be invited and assembled together by the ringing of bells, etc.

2. ཕྱག་འཚལ་བ Phyag-ḫtshal-wa—salutation. This part states that a person, while he salutes Buddha, Dharma and Saṅgha, should remain in a standing posture, fold up his palms and bend his body, etc.

3. ཚུལ་ཁྲིམས་ཀྱི་མདོ Tshul-khrims-kyi-mdo—the discourse on moral laws. This part explains how the blessed Buddha, during his sojourn in Jetavana, the garden of Anāthapiṇḍika at Śrāvastī, delivered the discourse on moral laws.

4. སྤྱི་བཤགས Spyi-bśags—general confession. This part describes how a person should declare to the community of monks the various sins committed by him through the body, speech and mind.

5. གསོ་སྦྱོང་ Gso-sbyoṅ—the cleansing of sins. This part describes how a person can emancipate himself from sins by going through certain rigorous practices prescribed by the community of monks.

It has already been stated that the Tibetan So-sor-thar-pa corresponds to the Chinese Po-lo-ti-mo-ca and the Pali Pātimokkha. The Po-lo-ti-mo-ca was translated into English by Rev. S. Beal and published in the Journal of the Royal Asiatic Society of Great Britain and Ireland in 1862. The Chinese

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[1] བོད་དུ་བྱོན་པའི་ཁ་ཆེའི་འདུལ་འཛིན་ཛི་ན་མི་ཏྲ་དང་ སུ་རེ་ནྡྲ་ བོ་དྷི་དང་ དཱ་ན་ཤཱི་ལ་སོགས་ཀྱང་བྱུང་ངོ་ ། (Dpag-bsam-ljon-bzaṅ, edited by Rai S. C. Das, Bahadur, C.I.E., p. 115.

[2] The So-sor-thar-pa explaining "Cho-ga" has been edited by M. M. Dr. Satis Chandra Vidyabhusana and published by the Government of Bengal, Calcutta.

Po-lo-ti-mo-ca was a translation of a Sanskrit work called Prātimokṣa which is now lost. Evidently this Sanskrit work was not identical with the one on which the Tibetan So-sor-thar-pa was based as the former is said to have belonged to the school of Dharma Gupta. Prātimokṣa, the Sanskrit original of the Po-lo-ti-mo-ca, was included in the "Caturvarga-vinaya-piṭaka," otherwise known as "Dharmagupta Vinaya" which appears from No. 1117 of Bunyiu Nanjio's catalogue to have been translated into Chinese in 405 A.D. The school of Dharma Gupta called Dharma Guptīya or Dhamma Guttika, which sprang up in the second century after the Nirvāṇa of Buddha, was one of the eighteen schools into which Buddhism was divided at the time of Kaniṣka about 78 A.D.

The Pātimokkha contained in the Pali language was undoubtedly older than both of the Prātimokṣas on which the Chinese Po-lo-ti-mo-ca and the Tibetan So-sor-thar-pa were respectively based. An English translation of the Pātimokkha was published by Rev. Dr. Gogerly in the Journal of the Royal Asiatic Society of Great Britain and Ireland in 1862, while a revised translation of the work made by Dr. T. W. Rhys Davids and Dr. H. Oldenberg was published in the S.B.E. series in 1881. The Pali Pātimokkha is reputed to have belonged to the Theravāda school founded by Buddha himself about 500 B.C. It passed through the three Buddhist Councils until it was reduced to writing in Ceylon in the reign of Vaṭṭagāmani (104-76 B.C.).

The So-sor-thar-pa contains 258 rules while the Po-lo-ti-mo-ca contains 250 and the Pātimokkha 227 only. These differences are due to the section on "sins which require expiation" containing 92 rules in Pali and 90 in Chinese and Tibetan, and the section on "many rules which must be learnt"[1] containing 75 rules in Pali, 100 in Chinese and 108 in Tibetan. The "introduction" in Tibetan is a little different from that in Chinese and Pali, while the rules themselves are also somewhat divergent in the three works.

In preparing my translation of the Tibetan So-sor-thar-pa I frequently consulted the translation of the Pali Pātimokkha published in the S.B.E. series already referred to. I have however made my translation as literal as possible in order that the special features of the Tibetan treatise may be clearly brought out. In translating difficult passages I have relied on

[1] The rules contained in the section on "many rules which must be learnt" are stated at the resumé to be 112 in number though by actual calculation they are found to be 108 only. The discrepancy is due to the four rules from 69 to 72 being counted twice, viz. as four rules relating to upbraiding, etc. and as included in the ten rules (69-78) relating to the begging bowl. According to the summaries the total number of rules in the section will be 107 only as the five rules from 59 to 63 are not counted there.

the Tibetan commentaries on So-sor-thar-pa contained in the Tangyur, section Mdo, volumes Pu, Phu, Bu, Mu, Tsu and Tshu, and specially on the commentary in volume Tshu named Tshig-gi-brjed-byaṅ.

A table is given below to show the correspondence, close or approximate, between the rules of the Tibetan So-sor-thar-pa with those of the Pali Pātimokkha.

So-sor-thar-pa.	*Pātimokkha.*
Pārājikā.	Pārājikā.
Rules 1—4.	Rules 1—4.
Saṁghādhiśeṣa.	Saṁghādisesa.
Rules 1—11.	Rules 1—11.
Rule 12.	Rule 13.
,, 13.	,, 12.
Aniyata dharmāḥ.	Aniyatā dhammā.
Rules 1—2.	Rules 1—2.
Niḥsargīya dharmāḥ.	Nissaggiyā pācittiyā dhammā.
Rules 1—22.	Rules 1—22.
Rule 23.	Rule 26.
,, 24.	,, 27.
,, 25.	,, 25.
,, 26.	,, 28.
,, 27.	,, 29.
,, 28.	,, 24.
,, 29.	,, 30.
,, 30.	,, 23.
Prāyaścittiya dharmāḥ.	Pācittiyā dhammā.
Rules 1—3.	Rules 1—3.
Rule 4.	Rule 63.
,, 5.	,, 7.
,, 6.	,, 4.
,, 7.	,, 9.
,, 8.	,, 8.
,, 9.	,, 81.
,, 10.	,, 72.
Rules 11—15.	Rules 11—15.
Rule 16.	Rule 17.
,, 17.	,, 16.
,, 18.	,, 18.
,, 19.	,, 20.
,, 20.	,, 19.
Rules 21—22.	Rules 21—22.
Rule 23.	Rule 24.
,, 24.	,, 25.
,, 25.	,, 26.
,, 26.	,, 27.
,, 27.	,, 28.

So-sor-thar-pa.	*Pātimokkha.*
Rule 28.	Rule 30.
,, 29.	,, 23.
,, 30.	,, 29.
,, 31.	,, 33.
,, 32.	,, 31.
,, 33.	,, 34.
,, 34.	,, 35.
,, 35.	,, 36.
,, 36.	,, 32.
Rules 37—38.	Rules 37—38.
Rule 39.	Rule 40.
,, 40.	,, 39.
,, 41.	,, 62.
,, 42.	,, nil.
,, 43.	,, nil.
,, 44.	,, 41.
,, 45.	,, 48.
,, 46.	,, 49.
,, 47.	,, 50.
,, 48.	,, 74.
,, 49.	,, 75.
,, 50.	,, 64.
,, 51.	,, 42.
,, 52.	,, 56.
,, 53.	,, nil.
,, 54.	,, 5.
,, 55.	,, 68.
,, 56.	,, 69.
,, 57.	,, 70.
,, 58.	,, 58.
,, 59.	,, 84.
,, 60.	,, 57.
,, 61.	,, 61.
,, 62.	,, 77.
,, 63.	,, 52.
,, 64.	,, 53.
,, 65.	,, 6.
,, 66.	,, 55.
,, 67.	,, 60.
,, 68.	,, 59.
,, 69.	,, 76.
,, 70.	,, 67.
,, 71.	,, 66.
,, 72.	,, 65.
,, 73.	,, 10.
,, 74.	,, 47.
,, 75.	,, 71.
,, 76.	,, 78.

So-sor-thar-pa.	*Pātimokkha.*
Rule 77.	Rule 80.
,, 78.	,, nil.
,, 79.	,, 51.
,, 80.	,, 85.
,, 81.	,, 46.
,, 82.	,, 84.
,, 83.	,, 73.
,, 84.	,, 86.
,, 85.	,, 87.
,, 86.	,, 88.
,, 87.	,, 89.
,, 88.	,, 90.
,, 89.	,, 91.
,, 90.	,, 92.
Pratideśanīya dharmāḥ.	Pāṭidesaniyā dhammā.
Rules 1—4.	Rules 1—4.
Śaikṣya dharmāḥ.	Sekhiyā dhammā.
Rules 1—7.	Rule 1.
Rule 8.	,, 2.
,, 9.	,, 9.
,, 10.	,, nil.
Rules 11—12.	Rules 3—4.
Rule 13.	Rule 13.
,, 14.	,, 7.
,, 15.	,, 8.
,, 16.	,, 23.
,, 17.	,, 11.
,, 18.	,, 5.
Rules 19—20.	Rules 21—22.
Rule 21.	Rule 25.
Rules 22—24.	,, nil.
Rule 25.	,, 6.
,, 26.	,, 15.
,, 27.	,, 16.
,, 28.	,, 19.
,, 29.	,, 21.
Rules 30—39.	,, nil.
Rule 40.	,, 27.
Rules 41—42.	,, 36.
,, 43—47.	,, nil.
Rule 48.	Rule 31.
,, 49.	,, nil.
,, 50.	,, 39.
Rules 51—52.	,, nil.
Rule 53.	,, 43.
,, 54.	,, 51.
,, 55.	,, 50.
Rules 56—57.	,, nil.

So-sor-thar-pa.	*Pātimokkha.*
Rule 58.	Rule 49.
Rules 59—60.	,, nil.
Rule 61.	,, 46.
,, 62.	,, 54.
,, 63.	,, 45.
,, 64.	,, 52.
,, 65.	,, 53.
,, 66.	,, 47.
Rules 67—68.	,, nil.
Rule 69.	,, 38.
,, 70.	,, 5[illegible].
,, 71.	,, nil.
,, 72.	,, 56.
Rules 73—78.	,, nil.
Rule 79.	,, 70.
,, 80.	,, 64.
,, 81.	,, 69.
,, 82.	,, 71.
,, 83	,, 72.
,, 84.	,, 67.
Rules 85—89.	,, nil.
Rule 90.	,, 66.
Rules 91—92.	,, nil.
Rule 93.	,, 67.
Rules 94—97.	,, 63.
Rule 98.	,, 61.
,, 99.	,, 58.
,, 100.	,, 57.
,, 101.	,, 60.
,, 102.	,, 59.
Rules 103—104.	,, nil.
Rule 105.	,, 73.
,, 106.	,, 75.
,, 107.	,, 74.
,, 108.	,, nil.
Adhikaraṇa-śamatha dharmāḥ.	Adhikaraṇasamathā dhammā.
Rules 1—3.	Rules 1—3.
Rule 4.	Rule 5.
,, 5.	,, 6.
,, 6.	,, 7.
,, 7.	,, 4.

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So-sor-thar-pa (Prātimokṣa-Sūtra).

The First Book.

Introduction.

G̱leṅ-gshi.

Nidāna.

[Eulogy on the So-sor-thar-pa.]

Obeisance to the Omniscient One.

I bow down my head to the Foremost of Beings who was a flag of glory renowned in the three worlds, who proclaimed in a lion's roar the message of the Sacred Faith, who obtained the precious treasure of omniscience, whose feet were touched by the crest-gems of Brahmā and Indra and who crossed the bottomless and boundless ocean of miseries (1).

The So-sor-thar-pa is the basis of training in omniscience, it is a casket of jewels kept apart in the community of monks, it is a vast lake filled with the rules of Buddhistic discipline, and it is the essence of all things existing in the fathomless and limitless universe (2).

It is the great leader of all holy doctrines taught by the Lord of Faith; and it is the emporium of all articles of study for the community of monks who are comparable to traders (3).

It is the medicine for curing the maladies of those who are distressed through the transgression of moral laws: and it is the ironwhip for young men who are deluded by their age (4).

It is the means of crossing the wide ocean of rotatory existence, and it is the firm embankment and a bridge to those who move towards the good spheres of life (5).

It is the way which leads to the conquest of troubles, it is an excellent guide to the king, and it exists as a ladder for entering the city of emancipation (6).

"When I enter Nirvāṇa the So-sor-thar-pa will be your teacher."[1] Remembering those words you should, O community of monks, assemble together to recite it with reverence due to Buddha himself. It is the very name of Buddha—so rare in all the worlds (7).

It is very difficult to acquire birth as man, still very rare it is to be a monk and rarer yet is the monk's perfect code of moral laws; and though the code of laws may be absolutely pure, it is very difficult to get a good spiritual guide (8).

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[1] Mahāparinibbāna Sutta, chap. vi, para 1.

Finding that it is very rare for a Buddha to appear on this earth and for a being to be born as a man, or to become a a monk, or to obtain a perfect code of moral laws, or to get a good spiritual guide—the sages desirous of doing good to their selves, and wishing to attain the two paths with their fruits should endeavour, with earnestness, to hear the So-sor-thar-pa (9, 10).

The Buddhas, steady in renunciation, who were the chiefs of monks and masters of disciplinary laws, desirous of attaining the true emancipation, perpetually guarded the So-sor-thar-pa (11).

Even in millions of ages it is difficult to hear, receive and grasp the So-sor-thar-pa—to follow it up is much more difficult (12).

Blessed is the birth of Buddhas, blessed too is the exposition of dharma, harmony in the community of monks is a bliss and blissful is the devotion of those who are in harmony (13).[1]

Blessed is the sight of a Buddhist (ārya), blessed too is the association with a holy spirit and absence of the sight of sinful persons is indeed a perpetual bliss (14).[2]

Blessed is the sight of one who observes moral laws, blessed too is the sight of a learned person, the sight of Arhats is a bliss for getting rid of rebirths (15).

Blessed is the river which has pleasant banks and blessed is the person who meditates on religion; the attainment of wisdom is a bliss and so is the destruction of arrogance (16).

Blessed is the existence of persons who have perfectly subdued their senses, have grown old in peaceful monasteries and have screened their youthful age in the forest of learned men (17).

[Speech of the monk who recites the So-sor-thar-pa.]

O brethren, some seasons of the year are over and some are to come. How many? So many. O brethren, since old age and death are fast approaching, and since the doctrine of the Teacher is about to perish, it behoves the community of monks to practise discipline. Tathāgata Arhat attained the full Buddhistic enlightenment: some others too following him achieved with earnestness the blessed dharma leaning to the side of enlightenment. Our community of monks, devotees of Lord Buddha, are engaged here in petty concerns. Our acts being sordid we should consider what should be the foremost duty of our community.

Let us ask the approval, and enquire about the purity, of the monks who are not come. After that I should repeat the following :—

[1] Dhammapada, Buddhavagga, verse 16.
[2] Dhammapada, Sukhavagga, verse 10.

Bowing down to Śākya Siṁha with folded palms you hear from me for the sake of your discipline the So-sor-thar-pa which is recited (18).

Having heard what has been said by the Great Sage, you must act according to the same, and must apply yourselves diligently to avoid the smallest sins (19).

This So-sor-thar-pa is indeed a bridle to the person who moves on with perpetual exertions and who striking his horse-like mind with a sharp whip makes it follow the commandments fallen from the mouth of Buddha (20).

Those great persons, who do not turn away even by their speech from the proper course, are comparable to noble horses that gain sure victory in the war of troubles (21).

Those, to whom this is not a bridle or who do not desire it in their heart, are confounded by the war of troubles and wander away in a disconcerted state (22).

O brethren, listen to me, I pray. To-day is the 14th[1] or 15th day of the lunar month for the celebration of Sabbath (Poṣadha) by the community of monks. If it is convenient to the community, let us celebrate Sabbath (Poṣadha) and recite the So-sor-thar-pa. O brethren, we do perform the ceremony of Sabbath (Poṣadha) and recite the So-sor-thar-pa.

Whosoever among you has committed any fault, let him confess it. If there is no fault, say nothing whatsoever. If nothing is said I am to understand that the brethren are perfectly pure. As a monk gives an answer if a question is put to him separately, so each monk is to give an answer when a question is repeated three times in a community of monks like this. Whatsoever monk in such a community, thus interrogated three times, does not confess a fault of which there is recollection, is guilty of uttering a deliberate lie. The uttering of a deliberate lie has, O brethren, been declared by Lord Buddha to be an obstacle on the way. Therefore a monk who has committed a fault and desires to be cleansed therefrom should confess it if he remembers the same. Having made confession he will reside in happiness. But if he does not confess or declare his fault, he will not be happy.

O brethren, I have recited the Introduction to So-sor-thar-pa. I now ask you whether you are perfectly pure in this

[1] If there is a junction of three lunar days (tithi) on one solar day, the middle one is not recognized. Hence when the 15th lunar day is unrecognized, the So-sor-thar-pa is to be recited on the 14th. Poṣadhas (Sabbaths) are of three kinds, *viz.* (1) those held on the 14th day of the moon, (2) those held on the 15th day of the moon, and (3) those held on any day by the common consent of the community of monks. In a year there are three seasons, *viz.* winter, summer and rain, in each of which there are celebrated 8 Poṣadhas. The 3rd and 7th Poṣadhas of every season are held on the 14th day of the moon, while the remaining six are held on the 15th day of the moon.

matter. I ask you a second time and a third time. In this matter the brethren are perfectly pure, therefore they say nothing, so do I understand.

Four Rules regarding Defeat.

Pham-par-hgyur-wahi-chos-bshi.

Pārājikā.

Summary.—Impure conduct, theft, murder and falsehood —these are the four (sins) regarding which rules are given here.

Here are, O brethren, four rules regarding Defeat as known from the So-sor-thar-pa recited each half-month.

1. Whatsoever monk, who has received the monk's system of training and has not abandoned or injured it, indulges himself in impure intercourse down even with a brute beast, incurs Defeat and must not live in the community of monks.

2. Whatsoever monk living in a village or monastery takes a thing not given—which is counted as theft—in such a manner that a king or a minister would seize him and kill, imprison or banish him saying " thou art a thief, thou art stupid, thou art dishonest"—the monk, who thus takes a thing not given, incurs Defeat and must not live in the community of monks.

3. Whatsoever monk deliberately takes away the life of a human being, or procures a weapon for his death, or seeks out an assassin against him, or instigates him to self-destruction or eulogises death saying, " O man, what good do you get from this sinful, impure and wretched life ; it is better for you to die than to live"—that is, willingly and intentionally instigates a human being to commit suicide or celebrates to him the praises of death in such a way that in consequence thereof he dies—the monk who thus causes the death of a human being incurs Defeat and must not live in the community of monks.

4. Whatsoever monk without possessing a clear and perfect knowledge speaks of himself, " I possess superhuman knowledge, I am an elect, I am a specialist, I know this, I see this, without such practice something is not known and something is not seen ; and finding that sin has arisen from such profession and being desirous of cleansing himself therefrom, the monk at another time, whether asked or unasked, speaks thus, " O brethren, when I knew not I said that I knew, when I saw not I said that I saw, it was but vain, wild and false language"—the monk who speaks in this way, except through excessive confidence, incurs Defeat and must not live in the community of monks.

I have, O brethren, recited the four rules regarding Defeat. If a monk has committed sin arising from the

breach of any of the rules, he incurs Defeat and must not afterwards live in the community of monks deprived as he is of their privileges.

In this respect I ask, O brethren, "are you perfectly pure?" A second time and a third time I ask, "O brethren, are you perfectly pure?" In this respect the brethren are perfectly pure, therefore they say nothing, so do I understand.

Thirteen Rules regarding Suspension from Monkhood.

Dge-ḇdun-lhag-maḫi-choṣ-ḇcu-gsum.[1]

Saṅghādhiśeṣāḥ.

Summary.—Emission of semen, contact, discourse, bodily service, intermediation, house, monastery, groundless, a mere trifle, causing dissension, siding, corrupting family, and harsh speech.

Here are, O brethren, thirteen rules regarding Suspension from monkhood as known from the So-sor-thar-pa recited each half-month.

1. A conscious emission of semen, except in a dream, is a sin which causes Suspension from monkhood.

2. Whatsoever monk comes, with a perverted mind, into bodily contact with a woman or takes hold of her hand or shoulder or braid of hair, or touches any other parts of her body for enjoyment, commits a sin which causes Suspension from monkhood.

3. Whatsoever monk holds, with a perverted mind, a vicious discourse with a woman regarding sexual intercourse, such as a youth would hold with a damsel, commits a sin which causes Suspension from monkhood.

4. Whatsoever monk, in order to secure the bodily service of a woman to himself, says, with a perverted mind, in her presence, that "the service rendered by one's own body, through an act of intercourse, to a monk of such character, conduct and purity as myself, is the best of all services"—(he) extolling the woman's bodily service, commits a sin which causes Suspension from monkhood.

5. Whatsoever monk by conveying the words of a man to a woman or those of a woman to a man acts as an intermediary

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[1] The Sanskrit equivalent for the Tibetan word is "Saṅghādhiśeṣa" which signifies "residue of monks", "the refuse of monks" or "the monks suspended." It should be noted however that the corresponding word in Pali is "Saṅghādisesa" which signifies sins the atonement for which requires the presence of the Saṅgha (monks) at the beginning as well as at the end.

for a wife, a paramour or even for a harlot, commits a sin which causes Suspension from monkhood.

6. If a monk bringing materials together causes a house to be built up for himself, independent of a layman, he must take care to observe the proper measurements. And herein this is the measurement: the house inside must be twelve of Buddha's spans in length and seven of those spans in breadth. For the inspection of the site he must bring a community of monks who should see that the site is suitable, is not exposed to danger and is easy of access If the monk, in spite of the site being unsuitable or exposed to danger or not being easy of access, brings materials on his own account and causes a house to be built up for himself independent of a layman without taking the community of monks for the inspection or without showing them the site and also deviating from the proper measurements—(he) commits a sin which causes Suspension from monkhood.

7. If a monk seeks to build for monks a large monastery in which there shall be a resident layman, he must bring for the inspection of the site a community of monks who ought to see that the site is suitable, is not exposed to danger and is easy of access. If the monk, in spite of the site being unsuitable, exposed to danger and not being easy of access, builds for monks the monastery in which there shall be a resident layman, without bringing the community of monks for the inspection or without showing them the site—(he) commits a sin which causes Suspension from monkhood.

8. Whatsoever monk being angry prefers, out of malice, against an innocent monk the charge of Defeat, which is groundless, thinking "I may thus remove him anyhow from the course of purity"; and then at another time being asked or unasked says that the charge is groundless and that it was preferred out of malice—(he) commits a sin which causes Suspension from monkhood.

9. If a monk being angry prefers, out of malice, against an innocent monk a charge of Defeat which is unreal but accords with a part of another dispute, thinking "I may thus remove him anyhow from the course of purity"; and then at another time being asked or unasked says that the charge is unreal and that it was brought on account of its having accorded with a part of another dispute, the monk who out of malice and through imagination alone prefers the charge based thus on a mere trifle commits a sin which causes Suspension from monkhood.

10. Whatsoever monk endeavours to cause dissension in a community of monks that is in harmony or persists in emphasising the points calculated to cause dissension, should be addressed by other monks thus:—"O brother, do not endeavour to cause dissension in the community of monks that is in harmony, do not persist in emphasising the points calculated

to cause dissension, live in harmony with the community of monks, the community being in harmony there will be no innovations and they being in peace there will be no disputation: combining with one another, as milk combines with water, they do brighten the doctrine of Buddha and live in happiness. O brother, you abandon your expedients to cause dissension in the community of monks.'' If the monk being thus addressed by other monks abandons his expedients it is well. But if he abandons them not, he should be admonished a second time and a third time. Being thus formally admonished if he gives up his expedients, it is well; but if he does not, he commits a sin which causes Suspension from monkhood.

11. If certain monks—one, two or more—do, out of friendship, side with a monk who speaks out dissension, and address a community of monks thus: "O brethren, do not say anything good or bad to this dissentient monk. Why so? Because, O brethren, the monk speaks according to the law, he speaks according to the precepts, receiving well the law and precepts he holds them carefully and observes them, and he speaks with knowledge and not without it. Since he speaks only when he is so desired, it is our desire that he should speak.'' Then the community of monks should answer the monks thus: "Say not, sirs, that the dissentient monk speaks according to the law; that he speaks according to the precepts; that he receiving well the law and precepts, holds them carefully and observes them; that he speaks with knowledge and not without it and that since he speaks only when he is so desired, it is our desire that he should speak." Why so? "O sirs, this dissentient monk speaks not according to the law, he speaks not according to the precepts, he has not received well the law and precepts to hold them carefully or observe them. He speaks without knowledge and not with it. Since he speaks only when he is so desired, do not, sirs, desire him to speak. Do not, sirs, desire that there should be dissension in the community of monks: on the contrary desire, sirs, that there should be harmony in the community. The community of monks being in harmony there will be no innovations, they being in peace there will be no disputation: combining with one another, as milk combines with water, they do brighten the doctrine of Buddha and live in happiness. Do not, sirs, side with this monk who speaks out dissension in the community.'' If the monks being thus answered by the community abandons their course, it is well. If they abandon it not, they should be formally admonished a second time and a third time. Being thus formally admonished if they abandon their course it is well. But if they abandon it not they commit a sin which causes Suspension from monkhood.

12. If many monks dwelling near a village or a town corrupt families and perpetrate evil deeds and the families

corrupted by them are seen, heard and known, and the evil deeds perpetrated are also seen, heard and known, those monks should be addressed by a community of monks thus: "O brethren, you are corrupters of families and perpetrators of evil deeds; the families corrupted by you are seen, heard and known; and your evil deeds too are seen, heard and known: O brethren, you have dwelt here long enough, go away now from this place." Being so addressed if they should answer the community of monks thus: "O brethren, some of you here are walking in lust, some in malice, some in delusion and some in fear; and for a fault of a like nature you do remove some monks while others you do not remove";—the community should in return answer thus: "O brethren, do not say that some of us walk in lust, some in malice, some in delusion and some in fear; and for a fault of a like nature we remove some monks while others we do not remove. Why so? We monks do not walk in lust, we do not walk in malice, we do not walk in delusion and we do not walk in fear. O brethren, you are corrupters of families and perpetrators of evil deeds; and you yourselves have seen, heard and known the corrupters of families and perpetrators of evil deeds: give up your talk that we monks walk in lust, in malice, in delusion and in fear." If those monks being thus addressed by the community of monks abandon their evil course it is well. But if they abandon it not, they should be formally admonished a second time and a third time. If they then abandon their evil course, it is well; but if they do not, they commit a sin which causes Suspension from monkhood.

13. If a monk of harsh speech, when spoken to by a community of monks about matters of training in accordance with the law and precepts delivered by Buddha, says: "O brethren, do not say anything, good or bad, to me; I too shall say nothing, good or bad, to you; O brethren, refrain from speaking to me, I too shall refrain from speaking to you;—there is in fact nothing to be spoken about";—he should be addressed by the community of monks thus: "O brother, when you are spoken to by the community of monks about matters of training in accordance with the law and precepts delivered by Buddha, do not make yourself a person who cannot be spoken to, make yourself rather a person to whom we can speak. O brother, when the monks speak to you in accordance with the law and precepts, you too should speak to them in accordance with the same. By mutual conversation and mutual instruction you do save one another from falling into sin. Thus grows up the monkhood established by our fully Enlightened Lord, the Blessed Tathāgata the Vanquisher of enemies. O brother, abandon your resolution of not being spoken to." If the monk thus addressed by the community of monks abandons his resolution, it is good. But if he does not, he should

be formally admonished a second time and a third time. If he then abandons his resolution, it is good; but if he does not, he commits a sin which causes Suspension from monkhood.

O brethren, I have recited the thirteen rules regarding sins which cause Suspension from monkhood. Of these the first nine become sins at once, while the remaining four do not become sins until the end of the third admonition. If a monk commits any of these sins, he must, even against his wish, live in a separate residence for as many days as he knowingly concealed his sins. After this has been done he must, for six further days, cultivate reverence for monkhood. Thereupon he should, while acting according to the law, be reinstated in some place where there is a community of at least twenty monks. If the community being a body of less than twenty, even by one, should reinstate that monk he is not reinstated and that community deserves censure. This is the prescribed course in the matter.

O brethren, I ask you whether you are perfectly pure in this matter. I ask you a second time and a third time whether you are perfectly pure in this matter. In this matter the brethren are perfectly pure. Therefore they do not say anything. So do I understand.

Two Rules regarding Undetermined Matters.

Ma-ṅes-pahi-chos-gñis.

Aniyata-dharmāḥ.

Summary.—Sitting in a solitary protected place.

Here are, O brethren, two rules regarding Undetermined Matters as known from the So-sor-thar-pa recited each half-month.

1. If a monk sits together with a woman in a solitary protected place suitable for the carrying out of lustful desires; and if a female devotee of undoubted veracity charges him with one or other of the three offences, viz., that which causes Defeat or Suspension or requires Expiation, then the monk, if he acknowledges that he so sat, should be held guilty of the offence which he has committed or with which he has been charged.

This is an Undetermined Matter.

2. If a monk sits together with a woman in a solitary protected place, which is however not suitable for the carrying out of lustful desires; and if a female devotee of undoubted veracity, charges him with one or other of the two offences, viz., that which causes Suspension or requires Expiation, then the monk, if he acknowledges that he so sat, should be held

guilty of the offence which he has committed or with which he has been charged.

This is an Undetermined Matter.

O brethren, I have recited the two Undetermined Matters. I ask you whether you are perfectly pure in this respect. A second time and a third time I ask you whether you are perfectly pure in this respect. In this respect the brethren are perfectly pure. Therefore they do not say anything. So do I understand.

Thirty Rules regarding Sins which involve Forfeiture.

Spaṅ-waḫi lhuṅ-byed-kyi chos gsum-bcu.

Niḥsargīya dharmāḥ.

Summary.—Retaining, leaving, keeping as a deposit, washing, accepting, begging, sufficient for upper and lower garments, price, taking each separate and sending.

Here are, O brethren, thirty rules for sins which involve Forfeiture as known from the So-sor-thar-pa recited each half-month.

1. A monk, after a set of Kaṭhina [1] robes has been obtained and made ready for him, can retain an extra robe for ten days, but if he retains it for a longer period he commits a sin which involves Forfeiture.

2. If a monk, after a set of Kaṭhina robes has been obtained and made ready for him, leaves in joke even for one night any one of the three robes allowed, except with the permission of the community of monks, he commits a sin which involves Forfeiture.

3. After a set of Kaṭhina robes has been obtained and made ready for a monk, if another set of robes be offered to him out of season it may be accepted by him should he so wish. After it has been accepted any deficiency thereof (in point of length, etc.) should be made up at once. Being unable to make up the deficiency, if he entertains a hope to do the same soon, he may keep the set for a month. If he keeps it beyond that time he commits a sin which involves Forfeiture.

4. Whatsoever monk causes his old robe to be washed, dyed or ironed by a nun who is not related to him, commits a sin which involves Forfeiture.

5. Whatsoever monk accepts a robe from the hands of a

[1] Kaṭhina is a robe made for a Buddhist monk in the course of a single day and night and presented by the donor before a community of at least five monks. Kaṭhina is usually presented during the end of Vassā between the full moon of Āśvina and that of Kārtika.

nun not related to him, except in exchange, commits a sin which involves Forfeiture.

6. Whatsoever monk begs a layman or a laywoman not related to him, for a robe, except at the right season, commits a sin which involves Forfeiture.

Here the right season signifies the time when the monk has been robbed of his robe or when his robe has been destroyed, burnt or carried away by wind or water. This is the right season here.

7. If a monk has been robbed of his robe, or if his robe has been destroyed, burnt or carried away by wind or water, he should go to a layman or a laywoman not related to him, for the same. If the faithful layman offers him a choice from among the materials for many robes that monk should take materials sufficient to make an upper and a lower garment of due measurement. If he takes materials beyond the limit, he commits a sin which involves Forfeiture.

8. If the price for a set of robes has been set apart for a particular monk by a layman or a laywoman not related to him, saying "I shall, with this price, purchase such and such a set of robes and shall give the same to a monk of such and such a name when he arrives"—and if the monk, before the offer has been made to him, goes to the layman or laywoman and desirous of getting something fine says: "O gentle one, the price which you have set apart for a set of robes for me, with that you purchase such and such a set and clothe me with the same in due time"—if the set is thus prepared then the monk who expressed a desire for the fine robe commits a sin which involves Forfeiture.

9. If the price for a set of robes has been set apart by a layman and the same has been done by his wife, for a particular monk not related to either of them, saying "we shall with these prices purchase such and such robes for a monk of such and such a name when he arrives"—and if the monk before the offer has been made to him comes to the layman and his wife and expressing a desire for getting something fine says: "O gentle ones, the price which each of you has set apart for a set of robes for me, with that let each of you purchase such and such a set and folding the two sets together make them one and clothe me with the same—and if the sets are thus prepared then the monk who expressed that desire commits a sin which involves Forfeiture.

10. If a king or a minister, or a brāhmaṇa or a householder, or a townsman or a villager, or a rich man or a trader sends through a messenger the price of a set of robes for a particular monk, and if the messenger going to the monk gently says: "O sir, the price of a set of robes has been sent to you through me, graciously accept it", then the monk should answer the messenger thus: "O friend, it does not behove us to accept the

price of robes, but we can accept a set of robes of the suitable kind at the right time.'' If then that messenger answers thus: ''O sir, have you got any agent to look to your requisites?'' Then the monk desirous of getting the set should point out to him the guard of the monastery or any other devotee as the agent who looks to his requisites. The messenger taking the price of the set should go to the agent and address him thus: ''O agent, my friend, attend to me. With this price of a set of robes may you purchase such and such a set of robes and clothe with the same the monk of such and such a name when he arrives.'' Having spoken everything elegantly and shown everything accurately, the messenger should approach the monk and address him thus: ''O sir, I have given a clear instruction to the agent pointed out, that when your reverence arrives there, he will clothe you with the set of robes betimes.'' The monk desirous of getting the set should then go to the agent and tell him ''O friend, I want a set of robes.'' The agent should thus be persuaded twice or three times and he should be reminded of the set of robes. If by persuading and reminding the agent twice or three times he succeeds in getting the set of robes, it is well. If he does not succeed in getting it, let then the monk go to the agent the fourth, fifth or sixth time and wait without speaking a word. If while silently waiting up to the fifth or sixth time, he succeeds in getting the set, it is well. But if waiting even up to the sixth time he does not succeed in getting the set, and then exerts himself beyond the sixth time and succeeds in getting it, he commits a sin which involves Forfeiture.

In case of failure to get the set of robes, let him go himself or send a messenger to the place, whence the price came, to say ''O gentle one, be it known to you that the price which you sent for the robes of a monk has been of no use to him. O sir, take care that your money is not wasted.'' This is the proper course in the matter.

Summary.—A piece of silk, entirely of wool, two parts, six years, a full span, journey, washing, gold and silver, silver (coin), and buying and selling.

11. Whatsoever monk gets a new mat made with silk commits a sin which involves Forfeiture.

12. Whatsoever monk gets a mat made entirely of black wool of goats commits a sin which involves Forfeiture.

13. If a monk gets a new mat made, two parts thereof should consist entirely of black wool of goats, the third part of white wool and the fourth part of motley-coloured wool. If the monk gets the mat made without its two parts consisting of pure black wool, the third part of white wool and the fourth part of motley-coloured wool, he commits a sin which involves Forfeiture.

14. A monk, who has got a mat made, should use it, even against his wish, for six years. If he gets another mat made within the six years—whether he has left or not the old one—without the permission of the community of monks, he commits a sin which involves Forfeiture.

15. If a monk gets a new piece of carpet made into a seat for himself, he must, in order to disfigure it, patch the same with a piece of the breadth of the Buddha's span taken from all parts of the old one which he formerly used. If the monk, with the object of not disfiguring the new one, does not take a piece of the breadth of the Buddha's span from all parts of the old one, he commits a sin which involves Forfeiture.

16. If a monk, while he is on a journey, gets some goat's wool, he should accept it if he likes; and having accepted it he may carry it in his own hand, if there is no porter, for a distance of three miles. If he carries it further he commits a sin which involves Forfeiture.

17. Whatsoever monk gets a goat's wool washed, dyed or combed out by a nun who is not related to him, commits a sin which involves Forfeiture.

18. Whatsoever monk receives gold or silver in his own hand or makes another person receive it for him commits a sin which involves Forfeiture.

19. Whatsoever monk performs the various transactions in silver (coin)[1] commits a sin which involves Forfeiture.

20. Whatsoever monk engages himself in any of the various kinds of buying and selling transactions commits a sin which involves Forfeiture.

Summary.—Two rules regarding the bowl, two rules regarding the weaver, gift taken back, the last month of autumn, being in a solitary residence, the materials for robes, appropriation, and keeping in store.

21. A monk can keep an extra bowl for ten days. If he keeps it beyond that period he commits a sin which involves Forfeiture.

22. Whatsoever monk possesses a bowl which is not broken in five places and which can be still used, yet desirous of getting something fine seeks for and obtains a new bowl in exchange for the one he possesses, commits a sin which involves Forfeiture.

That bowl must be forfeited by that monk to his community of monks; and whichever bowl in possession of that community shall be found to be the worst bowl, that shall be

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[1] "Mṅon-ṛtshan-can" signifies, according to Csoma, an actor on the stage or in a lawsuit. It corresponds to Sanskrit "rūpika" which may also signify silver (coin).

given to that monk with the words "this, monk, is thy bowl: it must not be given away or abandoned but must be kept until it breaks." This is the right course in the case.

23. Whatsoever monk gets, by begging, a bundle of wool and sends the same to a weaver not related to him to weave it into a garment and obtains the garment, commits a sin which involves Forfeiture.

24. If a layman or a laywoman sends for a weaver not related to them to make a garment for a monk, and if the monk, before the offer has been made, goes to the weaver and says: "O friend, be it known to you that the garment which you are making is for me: make it long and broad, thick and well-woven. If you do so I shall give you a reward—food, drink or any little thing that can be eaten." If the monk gives in this way a little reward for so making the garment, he commits a sin which involves Forfeiture.

25. Whatsoever monk gives to another monk a set of robes, but being afterwards angry or displeased takes it away or causes it to be taken away saying: "O monk, the set was not given to you, send it back", and if the second monk on account of his possessing an extra robe returns the set, the first monk commits a sin which involves Forfeiture.

26. If a monk, the last month of autumn not being yet complete by ten days, is offered a set of robes, he may accept it if he likes and may keep it in reserve till the time of presentation of robes, but if he keeps it longer he commits a sin which involves Forfeiture.

27. If a solitary residence of monks is exposed to fear or danger, a monk dwelling in that residence being driven away by the fear or danger may, if he likes and if the rainy season has been at an end, leave one or another of his three robes in a hut (inside a village); and if any suitable ground arises he may go away from the residence without the robe for six days. If he separates himself from the robe beyond that period he commits a sin which involves Forfeiture.

28. When a month of the hot season is still left, let a monk provide himself with the materials for robes of the rainy season; and when half a month of the hot season is left, let him make them and wear them. If the monk provides himself with the materials for robes when more than a month of the hot season has yet to run, or if he makes them and wears them when more than half a month of the hot season has yet to run, he commits a sin which involves Forfeiture.

29. Whatsoever monk knowingly appropriates for his own use a property intended for the community of monks, commits a sin which involves Forfeiture.

30. The medicines prescribed by the Blessed Buddha for the benefit of sick monks are these, viz., butter, oil, honey and sugar They may be accepted by a sick monk and kept in

store up to the seventh day for use. If he keeps them for use beyond that time, he commits a sin which involves Forfeiture.

O brethren, I have recited the thirty rules relating to sins which involve Forfeiture. In respect of them, I ask you, O brethren, whether you are perfectly pure. A second time and a third time I ask you, O brethren, whether you are perfectly pure. In this respect the brethren are perfectly pure. Therefore they do not say anything. So do I understand.

The Second Book.

Ninety Rules regarding sins which require Expiation.

Lṯuṅ-byeḏ-kyi-choṣ-ḏgu-ḇcu.

Prāyaścittīya dharmāḥ.

General Summary.—Knowingly, seed, not deputed, again and again, water, house, deliberately, many invitations, robber and entertainment.

Summary.—Telling a lie, speaking evil, slandering a monk, quarrelling, preaching, reciting, depravity, supernatural power, to make known, destroying the minute ones.

Here are, O brethren, ninety rules regarding sins which require Expiation as known from the So-sor-thar-pa recited each half-month.

1. To tell a lie knowingly is a sin which requires Expiation.

2. To speak evil of a man is a sin which requires Expiation.

3. To slander a monk is a sin which requires Expiation.

4. Whatsoever monk revives quarrel with a peaceful monk knowing that the latter has settled disputes in accordance with the precepts, commits a sin which requires Expiation.

5. Whatsoever monk preaches sermons, in more than five or six words, to a woman, except in the presence of a person who can understand what is said, commits a sin which requires Expiation.

6. Whatsoever monk recites sermons jointly with one who is not ordained, commits a sin which requires Expiation.

7. Whatsoever monk tells a person not ordained about the depravity of another monk commits a sin which requires Expiation.

8. Whatsoever monk tells a person not ordained about the superhuman power [of himself or of another monk], even if his statement is true, commits a sin which requires Expiation.

9. Whatsoever monk having previously done what was befitting says thereafter thus: "the monks have, for the sake of friendship, given away the property of the community to their own man," commits a sin which requires Expiation.

10. Whatsoever monk, when the So-sor-thar-pa is being recited, says: "O brethren, what is the good of reciting each half-month the minute little precepts regarding the "regrets of monks",[1] "impressed in the mind"[2], "becoming inconvenienced"[3] etc.—(he) thus destroying the minute precepts, commits a sin which requires Expiation.

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[1] *Vide* Rule 62. [2] *Vide* Rule 83. [3] *Vide* Rule[illegible]

Summary.—Seed, deriding, instructions, couch, mattress, expulsion, encroachment by one coming later, movable, sprinkling and rebuilding.

11. Destroying or causing to be destroyed an accumulation of seeds and a residence of living beings [1] is a sin which requires Expiation.

12. Deriding or abusing a person [2] is a sin which requires Expiation

13. Not to listen to precepts is a sin which requires Expiation.

14. Whatsoever monk takes a couch, chair, stool, blanket, pillow or mat belonging to a community of monks and laying it himself on the earth makes the same ready for use or instructs another to do so, and then goes away without himself restoring it to its previous place, or instructing another to do so, unless there is some ground to do the same, commits a sin which requires Expiation.

15. Whatsoever monk spreads out or causes to be spread out a mattress of grass or leaves in a monastery belonging to a community of monks and then goes away without himself folding it or instructing another to do so, unless there is some ground to do the same, commits a sin which requires Expiation.

16. Whatsoever monk being angry or displeased expels or causes to be expelled another monk from a monastery belonging to a community of monks, unless there is some ground to do the same, commits a sin which requires Expiation.

17. Whatsoever monk coming after another monk into a monastery belonging to a community of monks lies down or sits down knowingly encroaching upon the space occupied by the monk who arrived before him thinking that he will go away if he is inconvenienced, commits a sin which requires Expiation.

18. Whatsoever monk coming to the upper storey of a monastery belonging to a community of monks lies down or sits down with his whole weight on a coach or stool the legs of which are known to be movable, commits a sin which requires Expiation.

19. Whatsoever monk knowingly sprinkles or causes to be sprinkled water containing insects in it on grass, dung or dust, commits a sin which requires Expiation.

20. If a great monastery is to be built for a monk he, after examining the door frame, bolts, and windows for the supply of light etc., may build with brick and mud twice or three times, but if he builds beyond these times he commits a sin which requires Expiation.

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[1] Also "the place of origin" or "the source of a thing." [2] Monk?

Summary.—Not deputed, the sun having set, rice, robe given, robe made up, by appointment, boat, sitting in a solitary place, standing in a solitary place and procured by a nun.

21. Whatsoever monk not deputed thereto by a community of monks delivers exhortations to a nun, unless he possesses virtues[1] befitting such deputation, commits a sin which requires Expiation.

22. If a monk, even when deputed thereto by a community of monks, delivers exhortations to a nun after the sun has set, he commits a sin which requires Expiation.

23. If a monk speaks to a company of monks thus: "the monks deliver exhortations to the nuns for a morsel of rice", he commits a sin which requires Expiation.

24. If a monk gives away (his tattered) robe to a nun not related to him, he commits a sin which requires Expiation.

25. Whatsoever monk makes up a robe or causes it to be made up for a nun not related to him, commits a sin which requires Expiation.

26. Whatsoever monk travels by appointment on a road in the company of a nun, except on the right occasion, commits a sin which requires Expiation.

The right occasion is this: when the road on which they travel is reported to be exposed to fear and danger.

27. Whatsoever monk goes in a boat in the company of a nun, either up or down a stream, except for the purpose of crossing over to the other side, commits a sin which requires Expiation.

28. Whatsoever monk sits together with a nun on a mat in a covered solitary place, commits a sin which requires Expiation.

29. Whatsoever monk stands together with a nun in a covered solitary place, commits a sin which requires Expiation.

30. Whatsoever monk knowingly eats food procured by a nun in a house where he was not already invited, commits a sin which requires Expiation.

Summary.—To go again and again, a boarding house, flour, food, offering, right time, wrong time, storing up, passage of the mouth and delicacies.

31. To go again and again to receive a meal, except on the right occasion, is a sin which requires Expiation.

This is the right occasion, viz. when a monk is sick, when he has some work, when he is on a journey, or when robes are given.

32. A monk who has arrived fresh and who is not sick,

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[1] The virtues are mentioned in the foot-note of the Tibetan text

may accept one meal at a boarding house, but if he accepts more than that, he commits a sin which requires Expiation.

33. If a Brāhmana or a faithful layman offers to monks, who have come to his house, flour, cakes, etc., they may, if they like, take two or three bowlfuls, but if they take more they commit a sin which requires Expiation.

Taking two or three bowlfuls they should come out to an outside grove and divide them up among the monks there saying "we have finished our meal." This is the right course.

34. Whatsoever monk who has once finished his meal takes again, being invited, food or drink, except that which has been left over. commits a sin which requires Expiation.

35. Whatsoever monk knowing that a certain monk has finished his meal invites him and offers him food or drink that has not been left over, saying "O brother, come here, take this", with the intention of making him fall into moral error, commits a sin which requires Expiation.

36. To go in a body to receive a meal, except on the right occasion, is a sin which requires Expiation.

Herein the right occasion is this: when there is sickness, when there is some work, when on a journey, when there is a great assemblage or when there is a general invitation to monks. This is the right occasion.

37. Whatsoever monk takes food or drink at a wrong time commits a sin which requires Expiation.

38. Whatsoever monk eats food, hard or soft, that has been stored up commits a sin which requires Expiation.

39. Whatsoever monk places as food, in the passage of his mouth, anything not given to him, except water and tooth-cleanser, commits a sin which requires Expiation.

40. The Blessed Buddha prescribed the following delicacies for monks: milk, curd, butter, fish, flesh and dried flesh. If a monk, who is not sick, takes these delicacies secured for his own use from a layman's house, he commits a sin which requires Expiation.

Summary.—With living things, to sit in a place of sleeping, standing, a naked ascetic, army, two days, to go to the battle array, beating, threatening and depravity.

41. Whatsoever monk uses water knowing that it contains living things in it, commits a sin which requires Expiation.

42. Whatsoever monk knowing that a man and a woman are sleeping together in a house, goes there and sits on a couch, commits a sin which requires Expiation.

43. Whatsoever monk stands in a solitary covered part of a house in which he knows that a man and a woman are sleeping together. commits a sin which requires Expiation.

44. Whatsoever monk gives with his own hand food, hard or soft, to a naked or wandering ascetic, male or female, commits a sin which requires Expiation.

45. Whatsoever monk goes to see an army drawn up in battle array, commits a sin which requires Expiation.

46. If there arises any occasion for a monk to go to a place to see the army, he may remain there for two days. If he remains longer, he commits a sin which requires Expiation.

47. If while remaining there for two days, the monk should go to the battle array or should relish in mind the sight of the excellent flag [1], the excellent troops [2] or the review, he commits a sin which requires Expiation.

48. Whatsoever monk being angry or displeased beats another monk, commits a sin which requires Expiation.

49. Whatsoever monk being angry or displeased with another monk threatens him even with his fist, commits a sin which requires Expiation.

50. If a monk knowingly conceals the depravity of another monk, he commits a sin which requires Expiation.

Summary.—Pleasant, fire, community, not ordained, qualities, talking, novice-monk, disfiguring, a jewel and hot weather.

51. Whatsoever monk seeking a brawl should say on that account to another monk: "O brother, come here, let us go to the village to beg food, drink and what else is agreeable," and thereupon without going for alms should say: "O brother, go away, talking with you or sitting with you is not pleasant to me, I prefer sitting alone and talking by myself," he commits a sin which requires Expiation.

52. Whatsoever monk, who is not sick, kindles or causes to be kindled fire for his own comfort, commits a sin which requires Expiation.

53. Whatsoever monk gives anything to a monk of a certain community and being thereupon angry or displeased charges him with an offence which involves forfeiture saying "I gave the thing to the community and not to yourself," commits a sin which requires Expiation.

54. Whatsoever monk lies down for more than two nights in the same place with a person not ordained, commits a sin which requires Expiation.

55. Whatsoever monk says: "in this wise do I understand the doctrine of the Blessed One that the qualities [3] declared

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[1] The four flags are (1) bull, (2) crocodile (*makara*), (3) lion and (4) serpent (*nāga*).

[2] The troops consist of (1) elephant, (2) cavalry, (3) chariots and (4) infantry.

[3] Sins such as Pārājikā etc.

by the Blessed One as obstacles to spiritual progress are not really obstacles,'' should be addressed by the company of monks thus: "say not so, brother: do not bear false witness against the Blessed One, it is not well; the Blessed One did not say so; O brother, the qualities declared as obstacles to spiritual progress do indeed offer obstruction; and this has been proclaimed by the Blessed One in various ways.'' If that monk when he has thus been addressed by the company of monks abandons his opinion, it is well. If he does not abandon it, he should be admonished a second time and a third time. If he then abandons his opinion, it is well. but if he abandons it not, he commits a sin which requires Expiation.

56. Whatsoever monk knowing that the monk referred to in the previous rule did not act according to precepts and has not since then abandoned his vicious opinion, welcomes him, talks with him, dwells together with him, eats in company with him or even sleeps with him in one place, commits a sin which requires Expiation.

57. Even if a novice-monk says: "This do I know of the doctrine preached by the Blessed One, viz. that the lustful practices which are said to be obstructive of spiritual progress do not really offer obstruction'', he should be addressed by the company of monks thus: "O novice-monk, do not say so, do not bear false witness against the Blessed One, it is not well for you to slander the Blessed One, the Blessed One never preached that which you ascribe to him, O brother, novice-monk! it has been declared many a time by the Blessed One that the lustful practices are obstructive of spiritual progress, O novice-monk, you abandon this opinion of yours.'' If the novice-monk being thus addressed by the company of monks abandons his opinion, it is well. But if he does not abandon it he should be addressed and admonished a second time and a third time. If he then abandons his opinion, it is well. If he does not, then he should be addressed thus: "O novice-monk, do not from this day forward say that the Blessed One, the Tathāgata, the fully enlightened Buddha, is your teacher; do not occupy the position of a monk, preceptor or the like; you will, unlike other novice-monks, no longer enjoy the privileges of sleeping with the monks for two nights; O dull one, go away, depart.''

Whatsoever monk associates with, talks with or sleeps in one place with a novice-monk who has thus been expelled, commits a sin which requires Expiation.

58. If a monk obtains a new robe he must disfigure it, choosing one of the three ways of disfigurement, viz. making a part of it blue, red or orange-coloured. If he should make use of the new robe without disfiguring it in any of the three ways, he commits a sin which requires Expiation.

59. Whatsoever monk picks up with his own hand or causes another person to pick up, except in a grove[1] or in a dwelling place, a jewel or anything considered as a jewel, commits a sin which requires Expiation.

A monk may pick up a jewel or anything considered as a jewel in a grove or dwelling place with the object of restoring it to its owner. Therein this is the right course.

60. The Blessed One commanded that a bath should be taken each half-month. A monk who takes it oftener, except on the right occasion, commits a sin which requires Expiation.

Therein this is the right occasion, viz. one and a half months of summer and the first month of the rains, these two and half months of the hot weather, and when there is sickness, when there is some work and when there are wind and rain.

Summary.—Brute, regret, finger, sport, together with, frightening, hiding, not formally given, groundless and going on a journey without there being any man.

61. Whatsoever monk deliberately deprives a brute of its life, commits a sin which requires Expiation.

62. Whatsoever monk somehow speaks deliberately of another monk that he does not feel happiness even for a moment and produces on that account regrets in him, commits a sin which requires Expiation.

63. If a monk pokes a person with his finger, he commits a sin which requires Expiation.

64. If a monk sports in water, he commits a sin which requires Expiation.

65. Whatsoever monk sleeps together with a woman in the same place, commits a sin which requires Expiation.

66. Whatsoever monk frightens another monk, or makes him, even in fun, be at a loss as to what to do, commits a sin which requires Expiation.

67. Whatsoever monk hides or causes to hide the bowl, robe, mat, needle or girdle or any other requisites of an ascetic life belonging to a monk, nun, monk-pupil, novice-monk or novice-nun, unless there is reason to do so, commits a sin which requires Expiation.

68. Whatsoever monk having presented a robe to another monk continues to use it as if not formally given, commits a sin which requires Expiation.

69. Whatsoever monk being angry or displeased brings against a sinless pious monk a charge of "suspension from monkhood" which is groundless, commits a sin which requires Expiation.

70. Whatsoever monk goes on a journey together with a

[1] Properly, an enclosure used as a preaching-ground.

woman even to the nearest village, without there being any other man, commits a sin which requires Expiation.

Summary.—Robbers, under twenty years of age, digging, invitation, training, quarrelling, going away without saying anything, discourtesy, drinking and at a wrong time.

71. Whatsoever monk journeys by appointment along the same route with a caravan of robbers, even as far as the next village, commits a sin which requires Expiation.

72. Whatsoever monks admit into a full monk's order any person under twenty years of age, commit a sin which requires Expiation.

The ordination of the person is invalid and the monks too are disgraced. Therein this is the right course.

73. Whatsoever monk digs earth with his own hands or employs another person to dig it, commits a sin which requires Expiation.

74. A monk may accept an invitation for four months. If he accepts it for a longer period he commits a sin which requires Expiation.

Exception is to be made in the case of separate invitations, repeated invitations, an invitation on a special occasion and a perpetual invitation. Therein this is the right course.

75. Whatsoever monk being addressed by a company of monks thus: "brother, you should train yourself in this course of study", should answer thus: "by your words I shall not submit myself to the training until I have made enquiries regarding it with monks who are depositaries of laws, precepts and tables of contents: you are like children unwise, unlearned and stupid"—commits a sin which requires Expiation.

A monk, even if he is desirous of attaining omniscience, should submit himself to the training. The monks who are depositaries of laws, precepts and tables of contents should also be interrogated.

Therein this is the right course.

76. Whatsoever monk sits in silence overhearing when monks are quarrelling, making a disturbance, showing disagreements or are engaged in a dispute, with the sole intention of knowing whatever they utter, commits a sin which requires Expiation.

77. Whatsoever monk, when the community of monks is engaged in a formal inquiry, rises from his seat and goes away without saying anything to the monks who remain, unless there is reason to do so, commits a sin which requires Expiation.

78. If the monk (referred to in the previous rule) does not show any courtesy, he commits a sin which requires Expiation.

79. If a monk drinks corn-beer or distilled liquor so as to be intoxicated, he commits a sin which requires Expiation.

80. Whatsoever monk entering a village at a wrong time does not speak a word to the monk who resides there, unless there is reason to do so, commits a sin which requires Expiation.

Summary.—Receiving meal, dawn, first time, needle-case, mat, itches, garment, and the Sugata's robe.

81. Whatsoever monk, who has been invited to a house to receive his meal, goes on walking to other houses either before the meal time or after the meal time without saying anything to the inviter,[1] unless there is reason to do so, commits a sin which requires Expiation.

82. Whatsoever monk very early in the morning before the rise of the dawn, when jewels and things considered as jewels have not yet been collected, is seen going away from the door or threshold of the house of an anointed kṣatriya king, unless there is reason to do so, commits a sin which requires Expiation.

83. Whatsoever monk, when at the half-month the So-sor-thar-pa is being recited, should say thus: "O brethren, now for the first time do I notice that 'this' rule is embodied in the Scripture and is included in it"; and if other monks should observe concerning that monk thus: "this monk has sat at the recitation of the So-sor-thar-pa twice or thrice, not to say oftener, he should not be overlooked for betraying this ignorance, but he should be dealt with according to the law for the offence he has committed"; regret should be expressed for him thus: "O brother, this is an evil, this is a loss to you that when the So-sor-thar-pa is recited you do not listen to it with reverence, you do not consider it something superior and holy, you do not attend to it with care, you do not get it impressed in your mind, you do not incline your ear to it, and you do not meditate on it with all your hearts"—the monk for whom the regret is expressed commits a sin which requires Expiation.

84. Whatsoever monk causes a needle-case to be made of ivory, bone or horn commits a sin which requires Expiation. The needle-case so made should be broken.

85. When a monk is having a bedstead or chair made for the monkhood, he should make its legs eight fingers in height, according to the Buddha's fingers, exclusive of the portion inside the bed or chair. He who exceeds that limit commits a sin which requires Expiation.

The excessive portion of the bedstead or chair so made must be cut off.

86. Whatsoever monk makes or causes to be made for the monkhood a bedstead or chair stuffed with cotton, commits a sin which requires Expiation.

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1 Layman present.

From the bedstead or chair so stuffed, cotton should be taken out.

87. When a monk prepares a carpet to sit upon, it must be of the right measure. Herein this is the right measure, viz. two of Buddha's spans in length, one and a half in breadth and one span in the borders. If he exceeds that limit he commits a sin which requires Expiation.

The excessive portion of the carpet so made should be cut off.

88. Whatsoever monk is to make a cloth to cover itches it must be made of the right measure. Herein this is the right measure of the itch-covering cloth: in length four spans and in width two spans, according to the Buddha's span. If he exceeds that limit he commits a sin which requires Expiation.

The excessive portion of the cloth so made should be cut off.

89. If a monk is to make a garment for the rainy season it must be of the right measure. Herein this is the right measure of the rain-garment: in length six spans and in breadth two spans and a half, according to the Buddha's span. If he exceeds that limit he commits a sin which requires Expiation.

The excessive portion of the garment so made should be cut off.

90. Whatsoever monk in going to have a robe made of the dimensions of the Sugata's robe makes it larger, commits a sin which requires Expiation.

Herein this is the measure of the Sugata's robe: in length ten spans and in breadth six spans, according to the Sugata's span.

O brethren, I have recited the ninety rules regarding sins which require Expiation. In this respect do I ask my brethren "are you perfectly pure?" A second time and a third time do I ask my brethren "are you perfectly pure?" The brethren are perfectly pure in respect of them. Therefore they do not say anything. So do I understand.

Four Rules regarding Matters to be Confessed.

So-sor-bśags-par-bya-waḥi-chos-bshi.

Pratideśanīya dharmāḥ.

Summary.—Village, another house, learner's household and solitary place. The rules of confession as to these four matters were proclaimed by Buddha, the beneficent speaker.

Here are, O brethren, four rules regarding matters to be Confessed as known from the So-sor-thar-pa recited each half-month.

1. Whatsoever monk, when a nun not related to him is on the highway during her visit to a village for alms, accepts from her with his own hand food, either soft or hard, and drinks or eats it, should go to a grove outside and make a confession to the monks thus: "O brethren, I have perpetrated a low and unbecoming act which ought to be confessed and so do I confess it." This is a matter which ought to be Confessed.

2. When many monks invited to a layman's house are eating, if a certain nun staying there says: "here give soup, here give rice, here give pulses, here give again", she should be exhorted by the monks thus: "stand aside, sister, for a while until the monks should finish eating." If even a single monk does not dare to exhort the nun in the above way, then all those monks going to an outside grove should make a confession to the monks thus: "O brethren, we have committed a low and unbecoming act which ought to be confessed and so do we confess it." This is a matter which ought to be Confessed.

3. Whatsoever monk accepts with his own hand food, either soft or hard, in a learner's household [1] which has been declared by the monkhood to be under learner's regulations, without having been previously invited, and drinks or eats it, should go to an outside grove and make a confession to the monks thus: "O brethren, I have committed a low and unbecoming act which ought to be confessed and so do I confess it." This is a matter which ought to be Confessed.

4. Whatsoever monk, while he is dwelling in a hermitage situated in a region which is solitary, insecure and beset with various dangers, accepts food, soft or hard, of which he was not previously informed, in the outside grove [the life of the man who offers food being thus exposed to danger], and drinks or eats it, should go to the outside grove and make a confession to the monks thus: "O brethren, I have committed a low and unbecoming act which ought to be confessed and so do I confess it." This is a matter which ought to be Confessed.

O brethren, I have recited the four rules regarding matters which ought to be Confessed. In this respect do I ask my brethren "are you perfectly pure therein?" A second time and a third time do I ask my brethren "are you perfectly pure therein?" The brethren are perfectly pure therein. Therefore they do not say anything. So do I understand.

MANY RULES WHICH MUST BE LEARNT.

Ḇs̱lab-paẖi-chos̱-maṅ-po.

Śaikṣya dharmāḥ.

Summary.—Seven rules regarding the under-garment, three rules regarding the upper-garment, five rules regarding

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[1] This refers to a family which is strongly faithful but very poor.

the belting, etc., five rules regarding the head-cover, etc., five rules regarding jumping, etc., five rules regarding the body, etc., nine rules regarding sitting down, and eight rules regarding giving and taking.

O brethren, here are many rules which must be Learnt as known from the So-sor-thar-pa recited each half-month.

1. I shall put on my under-garment all around me.

2. I shall put on my under-garment so that it is not tucked up too much.

3. I shall put on my under-garment so that it is not let down too much (to drag on the ground).

4. I shall put on my under-garment so that it does not hang down like the trunk of an elephant.

5. I shall put on my under-garment so that it is not folded up like the leaf of a palm tree.

6. I shall put on my under-garment so that it does not appear like the beards of barley.

7. I shall put on my under-garment so that it does not appear like the expanded head of a snake.

8. I shall put on my upper-garment all around me.

9. I shall put on my upper-garment so that it is not tucked up too much.

10. I shall put on my upper-garment so that it is not let down too much.

11. I shall go amidst the houses with my clothes well tied.

12. I shall go amidst the houses with my clothes well put on.

13. I shall go amidst the houses speaking few words.

14. I shall go amidst the houses without moving my eyes hither and thither.

15. I shall go amidst the houses looking only as high as a yoke.

16. I shall go amidst the houses without covering my head.

17. I shall go amidst the houses without making any grimaces.

18. I shall go amidst the houses without pressing my head to my shoulders.

19. I shall go amidst the houses without folding together my hands upon my neck.

20. I shall go amidst the houses without folding together my hands upon my arms.

21. I shall go amidst the houses without taking any jump.

22. I shall go amidst the houses without stretching my limbs.

23. I shall go amidst the houses without squatting.

24. I shall go amidst the houses without leaning on my breast.

25. I shall go amidst the houses without leaning to my side.

26. I shall go amidst the houses without jerking my body.

27. I shall go amidst the houses without shaking my hands.

28. I shall go amidst the houses without moving my head.

29. I shall go amidst the houses without putting together my arms.

30. I shall go amidst the houses without complicating my hands.

31. While amidst the houses I shall not sit down on a couch without being bidden.

32. While amidst the houses I shall not occupy a seat without an examination of it.

33. While amidst the houses I shall not get down on a seat with the weight of my whole body.

34 While amidst the houses I shall not sit down laying my feet one above the other.

35. While amidst the houses I shall not sit down laying my thighs one above the other.

36 While amidst the houses I shall not sit down laying my ankles one above the other.

37. While amidst the houses I shall not sit down contracting my feet.

38. While amidst the houses I shall not sit down stretching out my feet.

39. While amidst the houses I shall not sit down making my privy parts visible.

40. I shall take my meal in a decent manner.

41. I shall not cover my meal.

42. I shall not make my bowl brimful with sauce.

43. I shall look into the bowl and its borders.

44. I shall not hold forth the bowl until the meal, hard or soft, has come.

45. I shall not out of greediness cover up the rice with sauce.

46. I shall not out of greediness cover up the sauce with the rice.

47. I shall not hold a bowl (plate) over the meal, hard or soft.

Summary.—Six rules regarding good eating, five rules regarding *tsu-tsu*, etc., and five rules regarding the licking of hand, etc.

48. I shall eat up my meal in a handsome manner.
49. The bits eaten shall not be too small.
50. The bits eaten shall not be too large.
51. The bits eaten shall be of a moderate size.
52. The mouth shall not be opened wide until the bits have been eaten up.
53. Nothing should be spoken while the mouth is filled with the bits.

54. I shall not make *tsu-tsu* noise.
55. I shall not make *cag-cag* noise.
56. I shall not make *hu-hu* noise.
57. I shall not make *phu-phu* noise.
58. I shall not eat by lolling out my tongue.

59. I shall not prefer one kind of corn to another.
60. I shall not prefer one kind of taste to another.
61. I shall not plaster my cheeks (with the remains of food).
62. I shall not lick my palate.
63. I shall eat without cutting my mouthfuls into several pieces.

64. I shall not lick my hand.
65. I shall not lick my bowl.
66. I shall not shake my hands.
67. I shall not shake my bowl.
68. I shall not eat my food making it a sort of pagoda.

Summary.—Four rules relating to upbraiding, etc., ten rules relating to the begging bowl, five rules as to standing, etc., five rules regarding the covered head, etc., five rules regarding the wearing of braided hair, etc., five rules regarding the riding on an elephant, etc., six rules regarding the holding of a staff, etc in the hand, and four rules for the sick.

69 I shall not look on the bowl of a monk that sits by me with an intention of upbraiding him.
70. I shall not take into my hand a water-pot while my hand is soiled with the leavings of a meal.
71. I shall not pour out water soiled with the leavings of a meal on a monk that sits by me.
72. I shall not pour out water soiled with the leavings of a meal into (the inner court of) a house without the permission of the master of the house.

73. I shall not pour out the remains of a meal from the inside of my begging bowl.
74. I shall not place my begging bowl on the ground without any support.

75. I shall lay my bowl not on a precipice, nor in an abyss, nor on a steep declivity.

76. I shall not wash my bowl in a standing posture.

77. I shall wash my bowl not on a precipice, nor in an abyss, nor on a steep declivity.

78. I shall not fetch water in my begging bowl from a rapid river drawing it against the current.

79. Standing I shall not preach religion to a person who remains sitting, unless he is sick.

80. I shall not preach religion to a person who remains lying down, unless he is sick.

81. Sitting on a low seat I shall not preach religion to a person who occupies a high seat, unless he is sick.

82. While going behind I shall not preach religion to a person who goes before me, unless he is sick.

83. Walking on the edge of a road I shall not preach religion to a person who is walking on the road, unless he is sick.

84. I shall not preach religion to a person whose head is covered, unless he is sick.

85. I shall not preach religion to a person whose garment is tucked up, unless he is sick.

86. I shall not preach religion to a person who is embracing another, unless he is sick.

87. I shall not preach religion to a person who folds his hands together upon his neck, unless he is sick.

88. I shall not preach religion to a person who folds up his arms, unless he is sick.

89. I shall not preach religion to a person who wears braided hair, unless he is sick.

90. I shall not preach religion to a person who wears a cap, unless he is sick.

91. I shall not preach religion to a person who has a diadem on his head, unless he is sick.

92. I shall not preach religion to a person who has a garland round his head, unless he is sick.

93. I shall not preach religion to a person whose head is wrapped round, unless he is sick.

94. I shall not preach religion to a person who is mounted on an elephant, unless he is sick.

95. I shall not preach religion to a person who is mounted on a horse, unless he is sick.

96. I shall not preach religion to a person who is carried in a palanquin, unless he is sick.

97. I shall not preach religion to a person who is sitting in a carriage, unless he is sick.

98. I shall not preach religion to a person who puts on high-heeled shoes, unless he is sick.

99. I shall not preach religion to a person who holds a staff in his hand, unless he is sick.

100. I shall not preach religion to a person who holds an umbrella in his hand, unless he is sick.

101. I shall not preach religion to a person who holds a weapon in his hand, unless he is sick.

102. I shall not preach religion to a person who holds a sword in his hand, unless he is sick.

103. I shall not preach religion to a person who holds a battle-axe in his hand, unless he is sick.

104. I shall not preach religion to a person who puts on a coat of mail, unless he is sick.

105. I shall not discharge ordure and urine in a standing posture, unless I am sick.

106. I shall not cast ordure, urine, spittle, snivel, snot or vomited matter into the water, unless I am sick.

107. I shall not cast ordure, urine, spittle snot or vomited matter into a place covered with green grass, unless I am sick.

108. I shall not climb higher on a tree than the height of a full-grown man, unless I am urged by any danger.

O brethren, I have recited the many rules which must be Learnt. In respect of them I ask "are you perfectly pure therein?" A second time and a third time I ask "are you perfectly pure therein?" In this matter the brethren are perfectly pure, therefore they do not say anything. So do I understand.

Seven Rules for the Settlement of Disputes.

Ṟtsoḏ-pa-shi-war-bya-waḫi-chos-ḇdun.

Adhikaraṇa-śamatha dharmāḥ.

Summary.—In presence, by recollection, not being out of mind, by majority, by inquiry into the true nature, by covering over as with grass, and by an undertaking.

O brethren, here are the seven rules for Settling disputes as known from the So-sor-thar-pa recited each half-month.

1. In case of a dispute fit to be Settled in presence, the proceedings must be conducted in the presence of the parties concerned.

2. In case of a dispute fit to be Settled from recollection, the proceedings must be conducted from the recollection of the person accused.

3. In case of a dispute fit to be Settled for a person who is no longer out of his mind, the proceedings must be conducted on the notion that the person is no longer out of his mind.

4. In case of a dispute fit to be Settled by a majority of the monks, the proceedings must be conducted by the majority

5. In case of a dispute fit to be Settled with an inquiry into its true nature, the proceedings must be conducted with the inquiry.

6. In case of a dispute fit to be Settled by being covered over as with grass, the proceedings must be conducted covering it over as with grass.

7. In case of a dispute fit to be Settled by an undertaking, the proceedings must be conducted by the undertaking of the accused.

If disputes do arise these should be settled—perfectly settled—by means of the above-mentioned seven rules for the Settlement of disputes according to the precept, the law and the instruction of the Teacher.

O brethren, I have recited the seven rules for the Settlement of disputes. In respect of them I ask my brethren "are you perfectly pure therein?" A second time and a third time I ask my brethren "are you perfectly pure therein?" In this respect the brethren are perfectly pure. Therefore they do not say anything. So do I understand.

O brethren!

Finished is the recitation of the Introduction to the So-sor-thar-pa.

Finished is the recitation of the four rules of Defeat.

Finished is the recitation of the thirteen rules as to Suspension from Monkhood.

Finished is the recitation of the two rules regarding Undetermined Matters.

Finished is the recitation of the thirty rules regarding sins which involve Forfeiture.

Finished is the recitation of the ninety rules regarding sins which require Expiation.

Finished is the recitation of the four rules regarding matters which must be Confessed.

Finished is the recitation of the many rules—one hundred and twelve—which must be Learnt.

Finished is the recitation of the seven rules for the Settlement of Disputes.

Bhagavān Tathāgata Arhat Samyak-sambuddha delivered these rules which belong to and are included in the Scripture.

There may arise other rules which accord with the Faith. These too you should reconcile yourselves to, agree to, rejoice in, cherish in your heart without dispute, remember and carefully observe.

[Concluding Stanzas.]

The Buddhas say that patience is the excellent penance and that it is the best Nirvāṇa: he is not an anchorite who injures others, and he is not an ascetic who insults others (23).[1]

Just as a person who possesses eyes and locomotion escapes all dangers, so do ye avoid all sins in this world by leading the life of a wise man (24).

Not to blame, not to injure, to live restrained under the law, to be moderate in eating, to sleep and sit alone and to dwell on the highest thoughts—this is indeed the teaching of the Buddhas (25).[2]

Just as a bee alights on a flower and destroys not its colour nor its scent, but taking a sip departs, so let a sage dwell in his village (26).[3]

A sage notices neither the perversities of others nor what others do or leave undone, but he should look only to his own conduct, whether that be right or not (27).[4]

A person who conceives the highest thoughts, studies the fundamental characteristics of a saint, and thinks continuously of peace, attains Nirvāṇa the final repose (28).

Merit greatly increases in one who is charitable, there is no enemy to one who is well restrained, a pious person shuns all sins and one whose troubles are over attains Nirvāṇa (29).[5]

Not to commit any sin, to practise virtue and to cleanse one's mind, that is the teaching of the Buddhas (30).[6]

Good is the restraint of the body, the restraint in speech is good, so good is the restraint of the mind, restraint in all things is good. A monk restrained in all things is freed from all sorrows (31).[7]

He who guards his speech, restrains his mind and lets not his body practise any evil—being cleansed in his activity in these three directions—attains the road preached by the sages (32).

Vipaśyī the perfect seer, Śikhī the holder of a charming

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1 Dhammapada, Buddhavagga, verse 6.
2 Dhammapada, Buddhavagga, verse 7.
3 Dhammapada, Pupphavagga, verse 6.
4 Dhammapada, Pupphavagga, verse 7.
5 Mahāparinibbāna Sutta, chap. IV.
6 Dhammapada, Buddhavagga, verse 5.
7 Dhammapada, Bhikkhuvagga, verse 2.

crest, Viśvabhū the protector of all, Krakucchanda the breaker of the chain of transmigration, Kanakamuni the golden sage, Kāśyapa the keeper of light and S'ākya-muni Gautama the god of gods—these seven celebrated Lords of the universe, great Protectors and wise Heroes, taught and spread the So-sor-thar-pa in full details (33, 34).[1]

It is revered by all the Buddhas and S'rāvakas. By showing reverence to it do you attain Nirvāṇa which is uncaused (35).

Arise, commence a new course of life, turn to the religion of Buddha and subdue the army of the lord of death just as an elephant demolishes a house of reeds (36).[2]

One who conscientiously practises this disciplinary doctrine, will put an end to all sufferings by avoiding the cycle of births (37).[3]

To help one another in keeping the moral laws and to disseminate the doctrine, this Sūtra of So-sor-thar-pa should be recited and the cleansing of sins should be effected by the community of monks (38).

Those for whom the Sūtra has been recited and for whom the cleansing of sins has been prescribed should keep these moral laws, just as a *bos gavaeus* preserves its tail (39).

Whatsoever merit I have achieved by reciting the So-sor-thar-pa, by that may the entire world attain the position of the Great Sage (40).

The Sūtra of So-sor-thar-pa is finished.

It was translated (into Tibetan) by Jina Mitra, a great master of Vinaya of the Ārya Mūla-sarvāstivāda school and Vaibhāṣika teacher of Kāśmīra—with the co-operation of the Tibetan official interpreter and reviser venerable Kluḫi-rgyal-m̱tshan of the town of Cog-gru.

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1 Aṭṭhavīsati-paritta 6-7.

2 Aruṇavatī Sutta quoted in the Manorathapūraṇī.

3 Aruṇavatī Sutta.

སོ་ སོར་ཐར་པ །

[བམ་པོ་དང་པོ]

གླེང་གཞི།

༄༅། རྒྱ་གར་སྐད་དུ། པྲཱ་ཏི་མོ་ཀྵ་སཱུ་ཏྲ། བོད་སྐད་དུ།
སོ་སོ་ཐར་པའི་མདོ།

ཐམས་ཅད་མཁྱེན་པ་ལ་ཕྱག་འཚལ་ལོ།

སྐྱན་པའི་བ་དན་འཛིག་རྟེན་གསུམ་དུ་གྲགས།
དམ་པའི་ཆོས་སྒྲ་སེང་གེའི་སྒྲ་སྒྲགས་པ།
ཐམས་ཅད་མཁྱེན་པ་དཀོན་མཆོག་མཛོད་བརྙེས་པ།
ཞབས་ལ་ཚངས་དབང་གཙུག་གི་ནོར་བུས་གདུགས།
སྡུག་བསྔལ་རྒྱ་མཚོ་གཏིང་མཐའ་མེད་རྒལ་བ།
འགྲོ་བའི་གཙོ་ལ་སྤྱི་བོས་ཕྱག་འཚལ་ལོ༎ 1
ཐམས་ཅད་མཁྱེན་པའི་བསླབ་གཞི་དཀོན་མཆོག་སྣོད།
འཕགས་པའི་[1]ཚོགས་ཀྱི་དབུས་སུ་དབྱེ་བར་བྱ།

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[1] Orig. འཕགས་མའི། in commentaries འཕགས་པའི།

སངས་རྒྱས་འདུལ་བ་གང་ཆེན་མཚོ།
གདིང་མཐའ་མེད་པ་ཐམས་ཅད་ཀྱི།
གནས་པའི་སྙིང་དང་སྙིང་པོ་ནི།
སོ་སོར་ཐར་པ་འདི་ཡིན་ནོ།། 2
འདི་ནི་དམ་ཆོས་རྒྱལ་པོ་ཡི།
ཆོས་ཀུན་གྱི་ནི་འདྲེན་པ་མཆོག།
འདི་ནི་དགེ་སློང་ཚོང་ཚོགས་ཀྱི།
བསླབ་ཟེང་ཚོང་ཁང་ཆེན་པོ་ཡིན།། 3
ཚུལ་ཁྲིམས་འཆལ་པས་ཟིན་རྣམས་ཀྱི།
གདུག་པ་རྣམས་སེལ་སྨན་འདི་ཡིན།
འདི་ནི་ལང་ཙོ་རྣམས་འཁྲུལ་པའི།
ཀང་གཉིས་གཞོན་ནུའི་ལྕགས་ཀྱུ་ཡིན།། 4
མཚོ་བས་ཟབ་པའི་འཁོར་བ་ལས།
སྒྲོལ་བའི་ཆལ་ཐབས་འདི་ཡིན་དེ།
འདི་ནི་བཟང་འགྲོར་འགྲོ་བ་ཡི།
ངེས་པའི་ཆུ་ལོན་ཟམ་པ་ཡིན།། 5
འདི་ནི་ཉོན་མོངས་ཡམ་བྲེད་ཡམ།
རྒྱལ་པོ་ཡི་ནི་འདྲེན་པ་མཆོག།
འདི་ནི་ཐར་པའི་གྲོང་འཇུག་པའི།
ཐེམ་སྐས་གཞི་དང་འདྲ་བར་གནས།། 6

ང་ནི་མྱ་ངན་འདས་གྱུར་ན།

འདི་ནི་ཁྱེད་ཀྱི་སྟོན་པ་ཞེས།

རང་བྱུང་ཉིད་ཀྱི་གསུམ་བཅས་པ།

ཉན་དན་དགེ་སློང་ཚོགས་འདུན་བསྟོད།

སངས་རྒྱས་ཞེས་བྱའི་སྒྲ་འདི་ཡང་།

འཇིག་རྟེན་དག་ན་རབ་ཏུ་དཀོན།། 7

མི་ཉིད་རྙེད་པ་ཤིན་ཏུ་དཀའ།

རབ་ཏུ་བྱུང་བ་ཤིན་ཏུ་དཀོན།

དེ་བཞིན་རབ་ཏུ་བྱུང་རྣམས་ཀྱི།

ཚུལ་ཁྲིམས་ལྡན་ཚོགས་རབ་ཏུ་དཀོན།

ཚུལ་ཁྲིམས་ཡོངས་སུ་དག་གྱུར་ཀྱང་།

གྲོགས་བཟང་ཤིན་ཏུ་རྙེད་པར་དཀའ།། 8

འཇིག་རྟེན་སངས་རྒྱས་འབྱུང་བ་དང་།

མི་དང་རབ་ཏུ་བྱུང་བ་དང་།

ཚུལ་ཁྲིམས་ལྡན་སུམ་ཚོགས་པ་དང་།

གྲོགས་བཟངས་རྙེད་དཀའ་སྙེད་གྱུར་ནས།། 9

མཁས་པ་བདག་ལ་ལེགས་འདོད་ཅིང་།

དེ་དག་[1]འབྲས་བཅས་བྱེད་འདོད་པ།

[1] Explained in the commentary as སྦྱོར་བའི་ལམ་དང་རྣམ་པར་དག་པའི་ལམ། (Tangyur, Mdo, Bu, folio 20).

སྡོམ་བརྩོན་རྣམས་ཀྱིས་སོ་སོར་ཐར།
མཉན་པའི་ཕྱིར་ནི་འབད་པར་བྱ།། 10
དགེ་སློང་དབང་འདུལ་ཀུན་དབང་པོ།
སངས་རྒྱས་མི་འགྱུར་རབ་བྱུང་བ།
ངེས་པར་ཐར་པ་འདོད་རྣམས་ཀྱིས།
སོ་སོར་ཐར་པ་རྟག་ཏུ་བསྲུངས།། 11
བསྐལ་པ་བྱེ་བ་ཉིས་སུ་ཡང་།
སོ་སོར་ཐར་པ་ཐོས་པ་དང་།
གཟུང་དང་འཛིན་པ་རྙེད་དཀའ་སྟེ།
བསྒྲུབས་པའང་ཤིན་ཏུ་རྙེད་པར་དཀའ།། 12
སངས་རྒྱས་རྣམས་ནི་འབྱུང་བ་བདེ།
ཆོས་བསྟན་པ་ཡང་བདེ་བ་ཡིན།
དགེ་འདུན་འཐུན་པ་བདེ་བསྟེ།
འཐུན་པ་རྣམས་ཀྱི་དཀའ་ཐུབ་བདེ།། 13
འཕགས་པ་རྣམས་ནི་མཐོང་བ་བདེ།
དམ་པ་དག་དང་འགྲོགས་པ་བདེ།
བྱིས་པ་རྣམས་ནི་མ་མཐོང་ན།
རྟག་ཏུ་བདེ་བ་ཉིད་དུ་འགྱུར།། 14
ཚུལ་ཁྲིམས་ལྡན་པ་མཐོང་བ་བདེ།
མང་དུ་ཐོས་པ་མཐོང་བ་བདེ།

ཡང་སྲིད་རྣམ་པར་གྲོལ་བ་ཡི།
དགྲ་བཅོམ་པ་དག་མཐོང་བ་བདེ།། 15

འཇུག་རྟོགས་བདེ་བའི་ཚུ་སྐྱུང་བདེ།
ཆོས་ལ་གོམས་པའི་སྐྱེ་བོ་བདེ།
ཤེས་རབ་ཐོབ་པར་འགྱུར་བ་བདེ།
ངའོ་ང་རྒྱལ་ཟད་པ་བདེ།། 16

ངེས་པར་བྱས་ཤིང་དབང་པོ་ཐུལ་བ་དག།
དགོན་པ་ཞི་བ་རྣམས་སུ་གནས་གྱུར་དང་།
མང་དུ་ཐོས་པ་ནགས་ཀྱི་ནང་དག་དུ།
ལང་ཙོ་ཡོལ་བ་[1] རྣམས་ཀྱི་གནས་པ་བདེ།། 17

ཚེ་དང་ལྡན་པ་དག་སོགས་[2] རྣམས་ཀྱི་འདས་པ་དང་། ལྷག་མ། ཇི་ཙམ་པ། དེ་ཙམ་མོ། ཚེ་དང་ལྡན་པ་དག། རྒ་བ་དང་། འཆི་བ་མངོན་པར་འོང་ཞིང་། སྟོན་པའི་བསྟན་པ་ཡང་འཇིག་པར་འགྱུར་བས། ཚེ་དང་ལྡན་པ་དག་གིས་བག་ཡོད་པས་རྣལ་འབྱོར་དུ་བྱའོ། དེ་བཞིན་གཤེགས་པ་དགྲ་བཅོམ་པ་ཡང་དག་པར་རྫོགས་པའི་སངས་རྒྱས་རྣམས་ཀྱི་བྱང་ཆུབ་དང་། གཞན་ཡང་གང་དག་དེ་ལྟ་བུ་དང་མཐུན་པ། དགེ་བའི་ཆོས་བྱང་ཆུབ་ཀྱི་ཕྱོགས་རྣམས་ཀྱང་བག་ཡོད་པས་ཐོབ་པོ། བཅོམ་

[1] ཡོལ་བ signifies ཟད་པར (Tangyur, Mdo, Bu, folio 25).

[2] སོགས is explained as སོ་ག (Tshu, folio 206).

ལྡན་འདས་ཀྱི་ཉན་ཐོས་ཀྱི་དགེ་འདུན་ནི་དོན་ཉུང་བ། བྱ་བ་ཉུང་བ་ཡིན་པས། དགེ་འདུན་གྱིས་ཐོག་མར་བྱ་བ་ཅི་ཡོད།།

ཚེ་དང་ལྡན་པ་དག་མ་ལྷགས་པ་རྣམས་ལ་འདུན་པ་དང་ཡོངས་སུ་དག་པ་དྲིས་ཤིག། དྲིས་ནས་ཀྱང་བརྗོད་པར་བྱའོ།།

ཤཱཀྱ་སེང་གེ་དེ་ལ་ནི།
སོར་མོ་བཅུའི་ཐལ་སྦྱར་ཏེ།
སོ་སོར་ཐར་པ་གདོན་པར་བྱ།
གདུལ་བའི་དོན་དུ་ང་ལས་ཉོན།། 18
ཐོས་ནས་དྲང་སྲོང་ཆེན་པོ་ཡིས།
ཇི་སྐད་གསུངས་བཞིན་བསྒྲུབས་བྱ་ཞིང་།
ཁ་ན་མ་ཐོ་ཕྲ་རྣམས་ལ།
རྟུན་ཅིང་བྲེད་པ་ཉིད་དུ་གྱིས།། 19
རྟག་ཏུ་འབད་པས་འདའ་བ་ཡི།
སེམས་རྟ་ཁ་སླན་བཀའ་བ་ལ།
འཕྲུན་པའི་གཟེར་རྡོན་བརྒྱབ་པ་ཡི།
སྲབ་ནི་སོ་སོར་ཐར་འདི་ཡིན།། 20
ཆེ་བ་གང་དག་ངག་ཙམ་གྱིས།
ལྡོག་ཅིང་འཚམས་ལས་མི་འདའ་བ།
དེ་དག་མི་རྟ་བཟང་པོ་ཡི།
ཉོན་མོངས་གཡུལ་ལས་ངེས་རྒྱལ་འགྱུར།། 21

སྲུ་ལ་སྲབ་འདི་མེད་པ་དང་།
ཉང་དུའང་འདོད་པར་མི་འགྱུར་བ།
དེ་དག་ཉོན་མོངས་གཡུལ་གྱིས་དཀྲུགས།
འཇིག་བྲལ་རྣམ་པར་འཕྲུམ་པར་འགྱུར།། 22

དགེ་འདུན་བཙུན་པ་རྣམས་གསན་དུ་གསོལ། དེང་དགེ་འདུན་གྱི་གསོ་སྦྱོང་བཅུ་བཞི་པའམ་བཅོ་ལྔ་པ་སྟེ། གལ་ཏེ་ང་དགེ་འདུན་གྱིས་དུས་ལ་བབ་ཅིང་བཟོད་ན། དགེ་འདུན་གྱིས་གནང་བ་མཛོད་ཅིག་དང་། དེང་དགེ་འདུན་གསོ་སྦྱོང་མཛད་དེ། སོ་སོར་ཐར་པའི་མདོ་གདོན་པ་གདོན་ནོ། འདི་ནི་གསོལ་བའོ། ཚེ་དང་ལྡན་པ་དག་བདག་ཅག་གསོ་སྦྱོང་བྱ་སྟེ། སོ་སོར་ཐར་པའི་མདོ་གདོན་པ་གདོན་གྱིས།།

ཁྱེད་ཅག་སུ་ལ་ལྟུང་བ་ཡོད་པ་དེས་འཆོལ་ཅིག ལྟུང་བ་མེད་ན་ཅང་མ་སྨྲ་ཞིག ཅང་མི་སྨྲ་ན་བདག་གིས་ཚེ་དང་ལྡན་པ་དག་ཡོངས་སུ་དག་པར་རིགས་པར་བྱའོ། ཇི་ལྟར་སོ་སོར་དྲིས་ནས་དགེ་སློང་གིས་ལན་བཏབ་པ་དེ་བཞིན་དུ་དགེ་སློང་གི་འཁོར་འདི་ལྟ་བུ་ཡང་། ལན་གསུམ་གྱི་བར་དུ་བསྒྲགས་པར་བྱ་བ་ཡིན་ནོ། ཡང་དགེ་སློང་གང་། དགེ་སློང་གི་འཁོར་འདི་ལྟ་བུར་ལན་གསུམ་གྱི་བར་དུ་བསྒྲགས་པ་ན། ལྟུང་བ་ཡོད་པ་ལ་དྲན་བཞིན་དུ་མི་འཆོལ་ན། དེ་ཤེས་བཞིན་དུ་རྫུན་དུ་སྨྲ་བ་ཡིན་ནོ། ཚེ་དང་ལྡན་པ་དག་ཤེས་བཞིན་དུ་བརྫུན་དུ་སྨྲ་བ་ནི། བཅོམ་ལྡན་འདས་ཀྱིས་བར་དུ་གཅོད་པའི་ཆོས་སུ་གསུངས་སོ། དེ་བས་ན་དགེ་སློང་གང་ལྟུང་བ་བྱུང་བ་རྣམ་པར་དག་པར་འདོད་པས། ལྟུང་བ་ཡོད་ལ་དྲན་ཞིང་

མཐོང་བ་འཕྲོལ་བར་བྱའོ། འཕྲོལ་ནས་དེ་བདེ་བ་ལ་རེག་པར་གནས་པར་འགྱུར་རོ། མ་འཕྲོལ་མ་བཞགས་ན་ནི་མི་འགྱུར་རོ། ཚེ་དང་ལྡན་པ་དག་ བདག་ གིས་ སོ་སོར་ཐར་ པའི་ མདོ་གདོན་ པའི་གླེང་ གཞི་ བཏོན་ཟིན་ཏོ། དེ་ལ་བདག་གིས་ཚེ་དང་ལྡན་པ་དག་ལ་ཅི་འདི་ལ་ཁྱེད་ཡོངས་སུ་དག་གམ་ཞེས་དྲིའོ། ཅི་འདི་ལ་ཁྱེད་ཡོངས་སུ་དག་གམ་ཞེས་ལན་གཉིས་ལན་གསུམ་དུ་དྲིའོ། འདི་ལ་ཚེ་དང་ལྡན་པ་དག་ཡོངས་སུ་དག་ན། འདི་ལྟར་ཅང་མི་སྨྲ་བས་དེ་དེ་བཞིན་དུ་འཛིན་ཏོ།།

ཕམ་པར་འགྱུར་བའི་ཆོས་བཞི།

སྡོམ་ལ།

མི་ཚངས་སྤྱོད་དང་རྐུ་བ་དང་།
མི་ལ་གསོད་པར་མི་བྱ་བ།
བརྫུན་དུ་སྨྲ་དང་བཅས་པ་ཡི།
ཆོས་བཞི་འདིར་ནི་གསུངས་པ་ཡིན།།

ཚེ་དང་ལྡན་པ་དག་ཕམ་པར་འགྱུར་བའི་ཆོས་བཞི་པོ་འདི་དག་ནི། ཟླ་བ་ཕྱེད་ཕྱེད་ཅིང་སོ་སོར་ཐར་པའི་མདོ་གདོན་པ་ལས་འབྱུང་ངོ་།།

ཡང་དགེ་སློང་གང་དགེ་སློང་རྣམས་དང་ལྷན་ཅིག་བསླབ་པ་མཚུངས་པར་གྱུར་པས། བསླབ་པ་མ་ཕུལ་བསླབ་པ་ཉམས་པར་མ་བྱས་པར་མི་ཚངས་པར་སྤྱོད་པ་འཁྲིག་པ་ལས་བྱུང་བའི་ཆོས་བརྟེན་ན། ཐ་ན་དུད་

འགྲོ་འི་སྐྱེ་གནས་སྐྱེས་པ་དང་། ལྷན་ཅིག་ཀྱང་རུང་སྟེ། དགེ་སློང་དེ་ཕམ་པར་གྱུར་པ་ཡིན་གྱིས། གནས་པར་མི་བྱའོ།། 1

ཡང་དགེ་སློང་གང་གཞན་དག་གི་གྲོང་ན་འདུག་པའམ། དགོན་པ་ན་འདུག་པ་མ་བྱིན་པ་རྐུ་བའི་གྲངས་སུ་གཏོགས་པ། བླངས་ན་ཅི་ཙམ་མ་བྱིན་པར་བླངས་པ་དེ་རྒྱལ་པོའམ། བློན་པོ་ཆེན་པོས་བཟུང་ནས། དེ་ལ་འདི་སྐད་ཅེས། ཀྱེ་མི་ཁྱོད་ནི་རྐུན་མའོ། བྱིས་པའོ། བླུན་པའོ། རྐུ་བའོ་ཞེས་ཟེར་ཞིང་གསོད་དམ། འཆིང་ངམ། སྤྱུགས་ཀྱང་རུང་སྟེ། དགེ་སློང་དེ་ལྟར་མ་བྱིན་པར་ལེན་ན། དགེ་སློང་དེ་ཡང་ཕམ་པར་གྱུར་པ་ཡིན་གྱིས། གནས་པར་མི་བྱའོ།། 2

ཡང་དགེ་སློང་གང་མིའམ་མིར་ཆགས་པ་ལ་བསམ་བཞིན་དུ་རང་གི་ལག་གིས་དར་དེ། སློག་བཅད་དམ། དེ་ལ་མཚོན་བྱིན་ནམ། དེ་ལ་མཚོན་ཐོགས་པ་གཉེར་དམ། དེ་འཆིར་བཅུག་གམ། དེ་ལ་འཆི་བའི་བསྔགས་པ་བརྗོད་ཀྱང་རུང་སྟེ། དེ་ལ་འདི་སྐད་ཅེས་མི་ཁྱོད་འཚོ་བ་སྡིག་པ། མི་གཙང་བ་ངན་པ་འདིས་ཅི་ཞིག་བྱ་སྟེ། ཀྱེ་མི་ཁྱོད་གསོན་པ་བས་ཤི་བླའོ་ཞེས་ཟེར་ཞིང་། སེམས་ཀྱི་འདོད་པ་དང་། སེམས་ཀྱི་ཀུན་དུ་རྟོགས་པ་དག་གིས། རྣམ་གྲངས་དུ་མས་དེ་འཆིར་བཅུག་གམ། དེ་ལ་འཆི་བའི་བསྔགས་པ་བརྗོད་དེ། དེ་ཡང་ཚོམ་པ་དེས་དུས་བྱས་ན། དགེ་སློང་དེ་ཡང་ཕམ་པར་གྱུར་པ་ཡིན་གྱིས། གནས་པར་མི་བྱའོ།། 3

ཡང་དགེ་སློང་གང་མངོན་པར་མི་ཤེས་ཤིང་ཡོངས་སུ་མི་ཤེས་ལ། མིའི་ཆོས་བླ་མ་མཐར་དང་འཕགས་པ་དང་། བྱེ་བྲག་ཐོབ་པ་དང་།

ཤེས་པ་དང་། མཐོང་བ་དང་། རིག་པར་སྤྱོད་པ་མེད་ལ། མེད་བཞིན་དུ་འདི་ཤེས་སོ། འདི་མཐོང་ངོ་ཞེས་ཁས་འཆེས་པ་ལས་དེ་ལྟུང་བ་བྱུང་བ། རྣམ་པར་དག་པར་འདོད་ནས། དུས་གཞན་ཞིག་ན་དྲིས་ཀྱང་རུང་། མ་དྲིས་ཀྱང་རུང་། འདི་སྐད་ཅེས་ཚེ་དང་ལྡན་པ་དག་བདག་གིས་ནི། མི་ཤེས་པར་ཤེསོ་ཞེས་སྨྲས། མ་མཐོང་བར་མཐོང་ངོ་ཞེས་སྨྲས་ཏེ། གསོབ། གསོག། རྫུན་དུ་སྨྲས་སོ། ཞེས་ཟེར་ན། མངོན་པའི་ང་རྒྱལ་མ་[1]གཏོགས་ཏེ། དགེ་སློང་དེ་ཡང་ཕམ་པར་གྱུར་པ་ཡིན་གྱིས། གནས་པར་མི་བྱའོ།། 4

ཚེ་དང་ལྡན་པ་དག་བདག་གིས་ཕམ་པར་གྱུར་པའི་ཆོས་བཞི་པོ་དག་བཏོན་ཟིན་ཏོ། དགེ་སློང་གིས་དེ་དག་ལས་ལྟུང་བ་གང་ཡང་རུང་བ་ཞིག་བྱས་ན། ཐོག་མ་ཇི་ལྟ་བར་ཕྱིས་ཀྱང་དེ་བཞིན་ཕམ་པར་འགྱུར་ཏེ། དགེ་སློང་རྣམས་དང་ལྷན་ཅིག་གནས་པ་དང་། ཡོངས་སྤྱོད་དུ་མི་དབང་གིས་གནས་པར་མི་བྱའོ།།

དེ་ལ་བདག་གིས་ཚེ་དང་ལྡན་པ་དག་ལ། ཅི་འདི་ལ་ཁྱེད་ཡོངས་སུ་དག་གམ་ཞེས་དྲིའོ། ཅི་འདི་ལ་ཁྱེད་ཡོངས་སུ་དག་གམ་ཞེས་ལན་གཉིས་ལན་གསུམ་དུ་དྲིའོ། འདི་ལ་ཚེ་དང་ལྡན་པ་དག་ཡོངས་སུ་དག་ན་འདི་ལྟར་ཅང་མི་སྨྲ་བས་དེ་དེ་བཞིན་དུ་འཛིན་ཏོ།།

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[1] Explained as ཐྲིབ་མ་ཙམ་མ་མཐོང་བ་ལས་ཡོན་ཏན་ཐོབ་པར་ང་རྒྱལ་བྱེད་པའོ (Bu. folio 72).

དགེ་འདུན་ལྷག་མ།

སྡོམ་ལ།

ཁུ་བ་འབྱིན་པ་འཁྲིག་ཚིག་བསྙེན་བཀུར་སྨྲ།
ཁང་པ་ཁང་ཆེན་དང་ནི་གཞི་མེད་པ།
བག་ཙམ་དགེ་འདུན་དབྱེན་དང་དེ་རྗེས་ཕྱོགས།
ཁྱིམ་སུན་འབྱིན་དང་བཀའ་བློ་མི་བདེ་བའོ།།

ཚེ་དང་ལྡན་པ་དག་དགེ་འདུན་ལྷག་མའི་ཆོས་བཅུ་གསུམ་པོ་འདི་དག་ནི་ཟླ་བ་ཕྱེད་ཕྱེད་ཅིང་། སོ་སོར་ཐར་པའི་མདོ་འདོན་པ་ལས་འབྱུང་ངོ་།།

བསམ་བཞིན་དུ་ཁུ་བ་ཕྱུང་ན་རྨི་ལམ་གྱི་མ་གཏོགས་ཏེ། དགེ་འདུན་ལྷག་མའོ།། 1

ཡང་དགེ་སློང་གང་དྲལ་ཅིང་འགྱུར་པའི་སེམས་ཀྱིས། བུད་མེད་ཀྱི་ལུས་དང་། ལྷན་ཅིག་ལུས་རེག་པར་བྱེད་དམ། ལག་པ་ནས་བཟུང་ངམ། དཔུང་པ་ནས་བཟུང་ངམ། ལན་བུ་ནས་བཟུང་ངམ། ཡན་ལག་དང་ཉིང་ལག་གང་ཡང་རུང་བ་ལ། ཉོས་པ་དང་། ཀུག་པ་བདག་གིར་བྱེད་ན། དགེ་འདུན་ལྷག་མའོ།། 2

ཡང་དགེ་སློང་གང་དྲལ་ཅིང་འགྱུར་པའི་སེམས་ཀྱིས། བུད་མེད་ཀྱི་ལུས་ལ་གནས་ངན་ལེན་གྱི་ཚིག་སྨིག་པ་ཅན། ཚོགས་པར་མི་འབྱུང་བ། འཁྲིག་པ་ལས་བྱུང་བ་དང་ལྡན་པ་དག། སྐྱེས་བུས་ན་ཙུང་ལ་ཇི་ལྟ་བ་བཞིན་དུ་སྨྲས་ན། དགེ་འདུན་ལྷག་མའོ།། 3

ཡང་དགེ་སློང་གང་ཧྲལ་ཅིང་གྱུར་པའི་སེམས་ཀྱིས་བུད་མེད་ཀྱི་ཡུལ་གྱི་མདུན་དུ། བདག་ཉིད་ཀྱི་ལུས་ཀྱི་བསྙེན་བཀུར་བྱ་བའི་ཕྱིར་འདི་ལྟ་སྨྲེ། ང་ལྟ་བུའི་དགེ་སློང་ཚུལ་ཁྲིམས་དང་ལྡན་པ། དགེ་བའི་ཆོས་ཅན། ཚངས་པར་སྤྱོད་པ་ལ་འདི་ལྟར་འཁྲིག་པ་དང་ལྡན་པའི་ཆོས་འདིས། བསྙེན་བཀུར་བྱས་ན། སྐུ་འདི་བསྙེན་བཀུར་བྱས་པ་རྣམས་ཀྱི་མཆོག་ཡིན་ནོ་ཞེས་བསྔགས་པ་བརྗོད་ན། དགེ་འདུན་ལྷག་མའོ།། 4

ཡང་དགེ་སློང་གང་། བུད་མེད་ལ་སྐྱེས་པའི་ཚིག་དང་། སྐྱེས་པ་ལ་བུད་མེད་ཀྱི་ཚིག་གིས། ཆུང་མ་ཉིད་དམ། མཛའ་ན་མོ་ཉིད་དུ་སྐྱོན་བྱེད་ན་ཐ་ན་ཐང་འགའ་ཞད་པ་ཡང་རུང་སྟེ། དགེ་འདུན་ལྷག་མའོ།། 5

དགེ་སློང་གིས་བདག་གིས་བསླངས་པ་བདག་པོ་མེད་པ། བདག་གི་ཕྱིར་ཁང་པ་རྩིག་ཏུ་འཇུག་ན། དགེ་སློང་དེས་ཁང་པ་ཚད་བཞིན་དུ་བརྩིག་ཏུ་ཆུག་ཅིག། དེ་ལ་ཁང་པའི་ཚད་ནི་འདི་ཡིན་དེ། ནང་གི་སྲིད་དུ་བདེ་བར་གཤེགས་པའི་མཐོའི་མཐོ་བཅུ་གཉིས། ཞིང་དུ་མཐོ་བདུན་ནོ། གཞི་བལྟ་བའི་ཕྱིར། དགེ་སློང་དེས་དགེ་སློང་དག་དཀྲི་བར་བྱའོ། ཁྲིད་པའི་དགེ་སློང་དག་གིས་ཀྱང་གཞི་རུང་བ་དང་། བརྩོད་པ་མེད་པ་དང་། བརྩམ་དུ་རུང་བར་བལྟ་བར་བྱའོ། གལ་ཏེ་དགེ་སློང་གིས་གཞི་མ་རུང་བའམ། རྩོད་པ་དང་བཅས་པའམ། རྩམ་དུ་མི་རུང་བར་བདག་གིས་བསླངས་པ། བདག་པོ་མེད་པ། བདག་གི་ཕྱིར་ཁང་པ་རྩིག་ཏུ་འཇུག་གམ། གཞི་བརྟ་བའི་ཕྱིར་དགེ་སློང་དག་ཀྱང་མི་ཁྲིད་དམ། དགེ་སློང་ཁྲིད་པ་དག་ལ་གཞི་སྟོན་དམ། ཚད་ལས་འདས་ན་དགེ་འདུན་ལྷག་མའོ།། 6

དགེ་སློང་གིས་བདག་པོ་ཡོད་པ། དགེ་འདུན་གྱི་ཕྱིར་གཙུག་ལག་ཁང་ཆེན་པོ་བརྩིག་ཏུ་འཇུག་ན། གཞི་བལྟ་བའི་ཕྱིར། དགེ་སློང་དེས་དགེ་སློང་དག་དཀྲི་བར་བྱའོ། ཁྲིད་པའི་དགེ་སློང་དག་གིས་ཀྱང་གཞི་རུང་བ་དང་། རྩོད་པ་མེད་པ་དང་། རྩམ་དུ་རུང་བར་བལྟ་བར་བྱའོ། གལ་ཏེ་དགེ་སློང་གིས་གཞི་མི་རུང་བའམ། རྩོད་པ་དང་བཅས་པའམ། བརྩམ་དུ་མི་རུང་བར་བདག་པོ་ཡོད་པ་དགེ་འདུན་གྱི་ཕྱིར་གཙུག་ལག་ཁང་ཆེན་པོ་རྩིག་ཏུ་འཇུག་གམ། གཞི་བལྟ་བའི་ཕྱིར། དགེ་སློང་དག་ཀྱང་མི་ཁྲིད་དམ། དགེ་སློང་ཁྲིད་པ་རྣམས་ལ་གཞི་མི་སྟོན་ན། དགེ་འདུན་ལྷག་མའོ།། 7

ཡང་དགེ་སློང་གང་ཁྲོས་ཤིང་ཞེ་སྡང་བར་གྱུར་ནས། ཅི་ནས་ཀྱང་འདི་ཚངས་པར་སྤྱོད་པ་དང་དབྲལ་ལོ་སྙམ་ནས། དགེ་སློང་དག་པ་ལྟུང་བ་མེད་པ་ལ། གཞི་མེད་པར་ཕམ་པར་འགྱུར་བའི་ཆོས་ཀྱིས་སྐུར་པ་ལས་དེ་དུས་གཞན་ཞིག་ན་དྲིས་ཀྱང་རུང་། མ་དྲིས་ཀྱང་རུང་རྩོད་པ་དེ་ཡང་གཞི་མེད་པ་ཡིན་ལ། དགེ་སློང་ཡང་ཞེ་སྡང་ལ་གནས་པས། ཞེ་སྡང་གིས་སྨྲས་སོ་ཞེ་ན། དགེ་འདུན་ལྷག་མའོ།། 8

ཡང་དགེ་སློང་ཁྲོས་ཤིང་ཞེ་སྡང་བར་གྱུར་ནས་ཅི་ནས་ཀྱང་འདི་ཚངས་པར་སྤྱོད་པ་དང་དབྲལ་ལོ་སྙམ་ནས། དགེ་སློང་དག་པ་ལྟུང་བ་མེད་པ་ལ་གཞན་གྱི་ཆ་མ་ཡིན་པ་དང་[1]། འཐུན་པ་ཕམ་པར་འགྱུར་བའི་ཆོས་ཀྱིས་སྐུར་པ་ལས་དེ་དུས་གཞན་ཞིག་ན། དྲིས་ཀྱང་རུང་། མ་དྲིས་

[1] གནས་ལ་བརྟེན་པ་ནི་གནས་ཀྱི་ཆའོ། དེ་དང་རྗེས་སུ་མཐུན་པ་ནི་གནས་ཀྱི་ཆ་དང་མཐུན་པའོ། (Bu, folio 119).

ཀྱང་རུང་། རྩོད་པ་དེ་ཡང་གཞན་གྱི་ཆ་མ་ཡིན་པ་དང་འཐུན་པ་ཡིན་ལ།
རྩོད་པ་དེ་གཞན་གྱི་ཆ་མ་ཡིན་པ་དང་འཐུན་པས། བག་ཙམ་ལས་
བསམས་པ་ཙམ་གྱིས་ཆོས་འགའ་ཞིག་བླངས་པར་གྱུར་ལ། དགེ་སློང་
ཡང་ཞེ་སྡང་ལ་གནས་པས། ཞེ་སྡང་གིས་སྨྲས་སོ། ཞེ་ན། དགེ་
འདུན་ལྷག་མའོ།། 9

ཡང་དགེ་སློང་གང་དགེ་འདུན་འཐུན་པ་དབྱེ་བའི་ཕྱིར། རྩལ་བར་
བྱེད་ཅིང་། དབྱེན་བྱེད་པར་གྱུར་པའི་རྩོད་པ་ཡང་དག་པར་བླངས་
ནས་རབ་ཏུ་བཟུང་སྟེ་འདུག་ན། དགེ་སློང་དེ་ལ་དགེ་སློང་རྣམས་ཀྱིས་
འདི་སྐད་ཅེས། ཚེ་དང་ལྡན་པ་ཁྱོད་དགེ་འདུན་འཐུན་པ་དབྱེ་བའི་ཕྱིར་
རྩལ་བར་མ་བྱེད་ཅིག། དབྱེན་བྱེད་པར་འགྱུར་བའི་རྩོད་པ་ཡང་དག་པར་
བླངས་ནས་རབ་ཏུ་བཟུང་སྟེ་མ་འདུག་ཤིག། ཚེ་དང་ལྡན་པ་དགེ་འདུན་
དང་འཐུན་པར་གྱིས་ཤིག། དགེ་འདུན་འཐུན་ཞིང་མི་ཕྱེད་ལ་ཀུན་ཏུ་
དགའ་ཞིང་མི་རྩོད་དེ། མཆོག་གཅིག་འདོན་པ་ཅིག་ཅིང་། ཆུ་དང་འོ་
མ་གཅིག་ཏུ་འདྲེས་པ་ལྟ་བུར་གྱུར་ལ། སྟོན་པའི་བསྟན་པ་གསལ་བར་
བྱེད་ན། བདེ་བ་ལ་རེག་པར་འགྱུར་གྱིས། ཚེ་དང་ལྡན་པ་ཁྱོད་དགེ་
འདུན་འབྱེད་པར་བྱེད་པའི་གཞི་འདི་ལྟ་བུ་འདི་ཐོང་ཤིག། ཅེས་བསྒྲོ་བར་
བྱའོ། དགེ་སློང་དེ་ལ་དགེ་སློང་རྣམས་ཀྱི་དེ་སྐད་བསྒྲོ་བ་ན། གལ་ཏེ་
གཞི་དེ་གཏོང་ན་དེ་ལྟ་ན་ལེགས། གལ་ཏེ་མི་གཏོང་ན་གཞི་དེ་གཏོང་བར་བྱ་
བའི་ཕྱིར། ལན་གཉིས་ལན་གསུམ་དུ་ཡང་དག་པར་བསྒྲོ་བར་བྱའོ།
ཡང་དག་པར་བསྟན་པར་བྱའོ། ལན་གཉིས་ལན་གསུམ་དུ་ཡང་དག་

པར་བསྒྲོ། ཡང་དག་པར་བསྟན་པ་ན་གཞི་དེ་གཏོང་ན། དེ་ལྟ་ན་ལེགས། གལ་ཏེ་མི་གཏོང་ན་དགེ་འདུན་ལྷག་མ་འོ༎ 10

དགེ་སློང་དེའི་གྲོགས་བྱེད་པའི། དགེ་སློང་མི་འཐུན་པར་སྨྲ་བ་ཉིད་ཀྱི་རྗེས་སུ་ཕྱོགས་པ་གཅིག་གམ། གཉིས་སམ། མང་པོ་དག་ཡོད་ཅིང་། གལ་ཏེ་དེ་དག་དགེ་སློང་རྣམས་ལ་འདི་སྐད་ཅེས། ཚེ་དང་ལྡན་པ་དག་ཁྱེད་ཅག དགེ་ཡང་རུང་སྡིག་ཀྱང་རུང་། དགེ་སློང་འདི་ལ་ཅི་ཡང་མ་སྨྲ་ཞིག། དེ་ཅིའི་ཕྱིར་ཞེ་ན། ཚེ་དང་ལྡན་པ་དག་དགེ་སློང་འདི་ནི་ཆོས་སྨྲ་བ། འདུལ་བ་སྨྲ་བ། དགེ་སློང་འདི་ནི་ཆོས་དང་འདུལ་བ་ཡང་དག་པར་བླངས་ནས། རབ་ཏུ་བཟུང་སྟེ་རྗེས་སུ་ཐ་སྙད་འདོགས་པར་བྱེད་པ་དགེ་སློང་འདི་ནི་ཤེས་བཞིན་དུ་སྨྲའི། མི་ཤེས་པར་མ་ཡིན་པའི་ཕྱིར་ཏེ། དགེ་སློང་འདི་གང་ལ་འདོད་ཅིང་བཟོད་པ་དེ་ལ། བདག་ཅག་ཀྱང་འདོད་ཅིང་བཟོད་དོ་ཞེས་ཟེར་ན། དགེ་སློང་དེ་དག་ལ་དགེ་སློང་རྣམས་ཀྱིས་འདི་སྐད་ཅེས། ཚེ་དང་ལྡན་པ་དག་ཁྱེད་ཅག་དེ་སྐད་དགེ་སློང་འདི་ནི། ཆོས་སྨྲ་བ་འདུལ་བ་སྨྲ་བ། དགེ་སློང་འདི་ནི་ཆོས་དང་འདུལ་བ་ཡང་དག་པར་བླངས་ནས། རབ་ཏུ་བཟུང་སྟེ། རྗེས་སུ་ཐ་སྙད་འདོགས་པར་བྱེད་པ། དགེ་སློང་འདི་ནི་ཤེས་བཞིན་དུ་སྨྲའི། མི་ཤེས་པར་མ་ཡིན་པའི་ཕྱིར་ཏེ། དགེ་སློང་འདི་གང་ལ་འདོད་ཅིང་བཟོད་པ་དེ་ལ། བདག་ཅག་ཀྱང་འདོད་ཅིང་བཟོད་དོ། ཞེས་མ་ཟེར་ཅིག། དེ་ཅིའི་ཕྱིར་ཞེ་ན། ཚེ་དང་ལྡན་པ་དག་དགེ་སློང་འདི་ནི། ཆོས་སྨྲ་བ་མ་ཡིན། འདུལ་བ་སྨྲ་བ་མ་ཡིན་གྱི། ཚེ་དང་ལྡན་པ་དགེ་སློང་འདི་ནི་ཆོས་མ་ཡིན་པ

སྨྲ་བ། འདུལ་བ་མ་ཡིན་པ་སྨྲ་བ། དགེ་སློང་འདི་ནི་ཆོས་མ་ཡིན་པ་དང་། འདུལ་བ་མ་ཡིན་པ་ཡང་དག་པར་བླངས་ནས་རབ་ཏུ་བཟུང་སྟེ། རྗེས་སུ་ཐ་སྙད་འདོགས་པར་བྱེད་པ། དགེ་སློང་འདི་ནི་མི་ཤེས་བཞིན་དུ་སྨྲའི། ཤེས་པར་སྨྲ་བ་མ་ཡིན་པའི་ཕྱིར་ཏེ། དགེ་སློང་འདི་ནི་གང་ལ་བཟོད་ཅིང་འདོད་པ་ལ། ཚེ་དང་ལྡན་པ་དག་འདོད་ཅིང་བཟོད་པར་མ་བྱེད་ཅིག ཚེ་ལྡན་པ་དག་ཁྱེད་དགེ་འདུན་འབྱེད་འདོད་པར་མ་བྱེད་པར། ཚེ་དང་ལྡན་པ་དག་དགེ་འདུན་འཐུན་པ་ཉིད་དུ་འདོད་པར་གྱིས་ཤིག། དགེ་འདུན་འཐུན་ཞིང་མི་རྩོད་ལ། ཀུན་དུ་དགའ་ཞིང་མི་རྩོད་དེ། མཆོག་ཅིག་འདོན་པ་གཅིག་ཅིང་། ཆུ་དང་འོ་མ་གཅིག་ཏུ་འདྲེས་པ་ལྟ་བུར་གྱུར་ལ། སྟོན་པའི་བསྟན་པ་གསལ་བར་བྱེད་ན། བདེ་བ་ལ་རེག་པར་གནས་པར་འགྱུར་གྱིས། ཚེ་དང་ལྡན་པ་དགེ་འདུན་འབྱེད་པའི་རྗེས་སུ་ཕྱོགས་ཤིང་། མི་འཐུན་པར་སྨྲ་བ་འདི་ལྟ་བུ་འདི་ཐོང་ཤིག་ཅེས་བསྒོ་བར་བྱའོ། དགེ་སློང་དེ་དག་ལ། དགེ་སློང་རྣམས་ཀྱིས་དེ་སྐད་བསྒོ་བ་ན། གལ་ཏེ་གཞི་དེ་གཏོང་ན་དེ་ལྟ་ན་ལེགས། གལ་ཏེ་མི་གཏོང་ན་གཞི་དེ་གཏོང་བར་བྱ་བའི་ཕྱིར་ ལན་ གཉིས་ལན་གསུམ་དུ་ཡང་དག་པར་བསྒོ་བར་བྱ། ཡང་དག་པར་བསྟན་པར་བྱའོ། ལན་གཉིས་ལན་གསུམ་དུ་ཡང་དག་པར་བསྒོ། ཡང་དག་པར་བསྟན་པ་ན་གཞི་དེ་དག་གཏོང་ན་དེ་ལྟ་ན་ལེགས། གལ་ཏེ་མི་གཏོང་ན་དགེ་འདུན་ལྷག་མའོ॥ 11

དགེ་སློང་རབ་ཏུ་མང་པོ་དག་གྲོང་ངམ། གྲོང་རྡལ་ཞིག་ན་ཉེ་བར་རྟེན་ཅིང་གནས་པར་གྱུར་ལ། དེ་དག་ཀུན་ཁྱིམ་སུན་འབྱིན་པ། སྡིག

པའི་ཆོས་ཀུན་དུ་སྤྱོད་ཅིང་། དེ་དག་གིས་ཁྱིམ་སུན་ཕྱུང་བར་མཐོང་ངམ།
ཐོས་སམ། རབ་ཏུ་ཤེས་སམ། དེ་དག་སྡིག་པ་ཀུན་དུ་སྤྱོད་པར་མཐོང་
ངམ། ཐོས་སམ། རབ་ཏུ་ཤེས་ན། དགེ་སློང་དེ་དག་ལ་དགེ་སློང་
རྣམས་ཀྱིས་འདི་སྐད་ཅེས། ཚེ་དང་ལྡན་པ་དག་ཁྱིམ་སུན་འབྱིན་པ་སྡིག
པའི་ཆོས་ཀུན་དུ་སྤྱོད་པ་དག་ཡིན་ཏེ། ཁྱེད་ཀྱིས་ཁྱིམ་དག་སུན་ཕྱུང་
བར་ཡང་མཐོང་ཞིང་ཐོས་ལ། རབ་ཏུ་ཤེས་ཏེ། ཁྱེད་སྡིག་པ་ཀུན་དུ་
སྤྱོད་པར་མཐོང་ཞིང་ཐོས་ལ། རབ་ཏུ་ཤེས་ཀྱིས། ཚེ་དང་ལྡན་པ་དག
ཁྱེད་འདི་ན་གནས་པས་ཆོག་གིས། གནས་འདི་ནས་དེང་ཤིག་ཅེས
བསྒོ་བར་བྱའོ། གལ་ཏེ་དེ་དག་དགེ་སློང་རྣམས་ལ་འདི་སྐད་ཅེས།
ཚེ་དང་ལྡན་པ་དག་འདི་ན་དགེ་སློང་ཁ་ཅིག་འདུན་པས་འགྲོ་བ། ཞེ་སྡང་
གིས་འགྲོ་བ། གཏི་མུག་གིས་འགྲོ་བ། འཇིགས་པས་འགྲོ་བ་ཡིན་ཏེ།
འདི་ལྟར་ལྟུང་བ་འདྲ་བ་ཁོ་ན་ལས། དགེ་སློང་ཁ་ཅིག་ནི་སྐྲོད་པར་བྱེད།
ཁ་ཅིག་ནི་སྐྲོད་པར་མི་བྱེད་དོ། ཞེས་ཟེར་ན། དགེ་སློང་རྣམས
ཀྱིས་འདི་སྐད་ཅེས། ཚེ་དང་ལྡན་པ་དག་འདི་ན་དགེ་སློང་ཁ་ཅིག་འདུན
པས་འགྲོ་བ། ཞེ་སྡང་གིས་འགྲོ་བ། གཏི་མུག་གིས་འགྲོ་བ།
འཇིགས་པས་འགྲོ་བ་དག་ཡིན་ཏེ། འདི་ལྟར་ལྟུང་བ་འདྲ་བ་ཁོ་ན་ལས།
དགེ་སློང་ཁ་ཅིག་ནི་སྐྲོད་པར་བྱེད། ཁ་ཅིག་ནི་སྐྲོད་པར་མི་བྱེད་དོ་ཞེས
མ་ཟེར་ཅིག། དེ་ཅིའི་ཕྱིར་ཞེ་ན། དགེ་སློང་འདི་དག་ནི་འདུན་པས།
འགྲོ་བ་མ་ཡིན། ཞེ་སྡང་གིས་འགྲོ་བ་མ་ཡིན། གཏི་མུག་གིས་འགྲོ
བ་མ་ཡིན། འཇིགས་པས་འགྲོ་བ་དག་མ་ཡིན་གྱི་འདི་ལྟར་ཚེ་དང་ལྡན

པ་དག་ཉིད་ཁྱིམ་སུན་འབྱིན་པ་སྡིག་པའི་ཆོས་ཀུན་དུ་སྤྱོད་པ་དག་ཡིན་ཏེ། ཁྱེད་ཉིད་ཀྱིས་ཁྱིམ་དག་སུན་ཕྱུང་བར་ཡང་མཐོང་ཞིང་ཐོས་ལ། རབ་ཏུ་ཤེས། ཁྱེད་སྡིག་པ་ཀུན་དུ་སྤྱོད་པར་ཡང་མཐོང་ཞིང་ཐོས་ལ་རབ་ཏུ་ཤེས་པའི་ཕྱིར་ཏེ། ཚེ་དང་ལྡན་པ་དག་འདུན་པས་འགྲོ་བ་ཞེས་བྱ་བའི་ཚིག་གི་ཡམ་དང་། ཞེ་སྡང་གིས་འགྲོ་བ། གཏི་མུག་གིས་འགྲོ་བ། འཇིགས་པས་འགྲོ་བ་ཞེས་བྱ་བའི་ཚིག་གི་ལམ་འདི་ལྟ་བུ་འདི་མཐོང་ཤིག་ཅེས་བསྒོ་བར་བྱའོ། དགེ་སློང་དེ་དག་དགེ་སློང་རྣམས་ཀྱིས་དེ་སྐད་བསྒོ་བ་ན་གལ་ཏེ་གཞི་དེ་གཏོང་ན་དེ་ལྟ་ན་ལེགས། གལ་ཏེ་མི་གཏོང་ན། གཞི་དེ་གཏོང་བར་བྱ་བའི་ཕྱིར། ལན་གཉིས་ལན་གསུམ་དུ་ཡང་དག་པར་བསྒོ་བར་བྱ། ཡང་དག་པར་བསྟན་པར་བྱའོ། ལན་གཉིས་ལན་གསུམ་དུ་ཡང་དག་པར་བསྒོ། ཡང་དག་པར་བསྟན་པ་ན། གཞི་དེ་གཏོང་ན་དེ་ལྟ་ན་ལེགས། གལ་ཏེ་མི་གཏོང་ན་དགེ་འདུན་ལྷག་མའོ།། 12

འདི་ནི་དགེ་སློང་འགའ་ཞིག་བཀའ་བློ་མི་བདེ་བའི་རང་བཞིན་ཅན་དུ་གྱུར་ལ། དེ་ལ་དགེ་སློང་རྣམས་ཀྱིས་གདོན་པར་གཏོགས་པ་བསླབ་པའི་གཞི་རྣམས་དང་། བདེ་བར་གཤེགས་པའི་མདོར་གཏོགས་པ་རྣམས་ཀྱིས་ཆོས་དང་འཐུན་པ་དང་། འདུལ་བ་དང་འཐུན་པར་སྨྲས་པ་ན། ཚེ་དང་ལྡན་པ་དག་ཁྱེད་ཅག་དགེ་ཡང་རུང་སྡིག་ཀྱང་རུང་། བདག་ལ་ཅི་ཡང་མ་སྨྲ་ཤིག། བདག་ཀྱང་དགེ་ཡང་རུང་། སྡིག་ཀྱང་རུང་། ཚེ་དང་ལྡན་པ་དག་ལ་ཅི་ཡང་མི་སྨྲའོ། ཚེ་དང་ལྡན་པ་དག་གིས་བདག་ལ་ཚིག་གི་ལམ་མཐོང་ཤིག། ཁྱེད་ལ་ཡང་བདག་གིས་སྨྲས་པས་ཅི་ཞིག་བྱ་ཞེས།

བདག་ཉིད་བརྗོད་པར་བྱ་བ་མ་ཡིན་པར་བྱེད་ན། དགེ་སློང་དེ་ལ་དགེ་
སློང་རྣམས་ཀྱིས་འདི་སྐད་ཅེས། ཚེ་དང་ལྡན་པ་ཁྱོད་དགེ་སློང་རྣམས་
ཀྱིས་གནོན་པར་གདོགས་པ་བསླབ་པའི་གཞི་རྣམས་དང་། བདེ་བར་
གཤེགས་པའི་མདོར་གདོགས་པ་རྣམས་ཀྱིས་ཆོས་དང་འཐུན་པ་དང་།
འདུལ་བ་དང་འཐུན་པར་སྨྲས་ན། བདག་ཉིད་བརྗོད་པར་བྱ་བ་མ་ཡིན་
པར་མ་བྱེད་པར། ཚེ་དང་ལྡན་པས་བདག་ཉིད་བརྗོད་པར་བྱ་བ་ཁོ་ནར་
གྱིས་ཤིག། དགེ་སློང་རྣམས་ཚེ་དང་ལྡན་པ་ལ་ཆོས་དང་འཐུན་པ་དང་།
འདུལ་བ་དང་འཐུན་པར་སྨྲས་པ་ན། ཚེ་དང་ལྡན་པ་ཡང་དགེ་སློང་རྣམས་
ལ་ཆོས་དང་འཐུན་པ་དང་། འདུལ་བ་དང་འཐུན་པར་སྨྲོས་ཤིག། འདི་
ལྟ་སྟེ་གཅིག་ལ་གཅིག་བརྗོད་པར་བྱ་བ་ཉིད་དུ་བྱེད་པ་དང་། གཅིག་ལ་
གཅིག་འདོམས་ཤིང་རྗེས་སུ་སྟོན་པ་དང་། གཅིག་གིས་གཅིག་ལྟུང་བ་ལས་
སློང་བ་ཉིད། དེ་ལྟ་བུས་བཅོམ་ལྡན་འདས་དེ་བཞིན་གཤེགས་པ་དགྲ་
བཅོམ་པ་ཡང་དག་པར་རྫོགས་པའི་སངས་རྒྱས་དེའི་འཁོར་འདི་འཕེལ་
བར་འགྱུར་གྱིས། ཚེ་དང་ལྡན་པ་དག་བདག་ཉིད་བརྗོད་པར་བྱ་བ་མ་
ཡིན་པར་བྱེད་པའི་ལས་ཀྱི་མཐའ་འདི་ལྟ་བུ་ཐོང་ཤིག་ཅེས་བསྒོ་བར་
བྱའོ། དགེ་སློང་དེ་ལ་དགེ་སློང་རྣམས་ཀྱིས་དེ་སྐད་བསྒོ་བ་ན། གལ་
ཏེ་གཞི་དེ་གཏོང་ན་དེ་ལྟ་ན་ལེགས། གལ་ཏེ་མི་གཏོང་ན་གཞི་དེ་གཏང་བར་
བྱ་བའི་ཕྱིར། ལན་གཉིས་ལན་གསུམ་དུ་ཡང་དག་པར་བསྒོ་བར་བྱ།
ཡང་དག་པར་བསྟན་པར་བྱའོ། ལན་གཉིས་ལན་གསུམ་དུ་ཡང་དག་
པར་བསྒོ། ཡང་དག་པར་བསྟན་པ་ན། གཞི་དེ་གཏོང་ན་དེ་ལྟ་ན་ལེགས།
གལ་ཏེ་མི་གཏོང་ན་དགེ་འདུན་ལྷག་མའོ॥ 13

ཚེ་དང་ལྡན་པ་དག་བདག་གིས་དགེ་འདུན་ལྷག་མའི་ཆོས་བཅུ་གསུམ་པོ་དག་གདོན་ཟིན་ཏོ ॥

དེ་དག་ལས་དགུ་ནི་ལྷུང་བ་དང་པོ་དག་ཉིད་[1]ཀྱིས་སོ། བཞི་ནི་ལན་གསུམ་གྱིས་བར་གྱིས་སོ། དགེ་སློང་གིས་དེ་དག་ལས་ལྷུང་བ་གང་ཡང་རུང་བ་ཞིག་བྱས་ལ། ཇི་སྲིད་དུ་ཤེས་བཞིན་དུ་འཆབ་པར་བྱེད་པ་དེ་སྲིད་དུ་རེས་མི་འདོད་བཞིན་དུ་སྤོ་བར་བྱའོ། དགེ་སློང་གིས་མི་འདོད་བཞིན་དུ་སྤོ་བ་བྱས་ནས། དེའི་འོག་ཏུ་ཞག་དྲུག་གི་བར་དགེ་འདུན་མགུ་བར་བྱ་བ་སྤྱད་པར་བྱ་བའོ། དགེ་སློང་གིས་མགུ་བར་བྱ་བ་སྤྱད་ནས། དབྱུང་བ་ལ་ཐོགས་ཏེ་ཆོས་དང་འཐུན་པར་བྱས་ལ། དགེ་སློང་གིས་དགེ་འདུན་གྱི་སེམས་མགུ་བར་བྱས་ན། གང་ན་དགེ་སློང་ཉི་ཤུའི་ཚོགས་ཀྱི་དགེ་འདུན་ཡོད་པ་དེར། དགེ་སློང་དེ་དབྱུང་བར་བྱའོ། དགེ་སློང་ཉི་ཤུར་གཅིག་གིས་མ་ཚང་བའི་ཚོགས་ཀྱི་དགེ་འདུན་གྱིས། དགེ་སློང་དེ་འབྱིན་པར་བྱེད་ན། དགེ་སློང་དེ་ཡང་མ་ཕྱིན་ལ། དགེ་སློང་དེ་དག་ཀྱང་སྨད་པར་བྱ་བ་ཡིན་ཏེ། དེ་ལ་དེ་ནི་ཆོ་ག་ཡིན་ནོ ॥

དེ་ལ་བདག་གིས་ཚེ་དང་ལྡན་པ་དག་ལ་ཅི་འདི་ལ་ཁྱེད་ཡོངས་སུ་དག་གམ་ཞེས་དྲིའོ། ཅི་འདི་ལ་ཁྱེད་ཡོངས་སུ་དག་གམ་ཞེས་ལན་གཉིས་ལན་གསུམ་དུ་དྲིའོ། འདི་ལ་ཚེ་དང་ལྡན་པ་དག་ཡོངས་སུ་དག་ན་འདི་ལྟར་ཅང་མི་སྨྲ་བས་དེ་དེ་བཞིན་དུ་འཛིན་ཏོ ॥

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[1] Orig. དང་གཉིས། in commentary དག་ཉིད (Tshu, folio 70) explained as བྱུང་མ་ཐག་ཏུ།

མ་ངེས་པའི་ཆོས་གཉིས།

སྨོས་ལ།

དབེན་པ་སྐབས་ཡོད་འདུག་པའོ།།

ཚེ་དང་ལྡན་དག་མ་ངེས་པའི་ཆོས་གཉིས་པོ་འདི་དག་ནི་ཟླ་བ་ཕྱེད་ཕྱེད་ཅིང་། སོ་སོར་ཐར་པའི་མདོ་འདོན་པ་ལས་འབྱུང་ངོ་།།

ཡང་དགེ་སློང་གང་བུད་མེད་ཀྱི་ཡུལ་དང་། ལྷན་ཅིག་གཅིག་པུ་གཅིག་དང་། དབེན་པ་སྐབས་ཡོད་པ་ན། འདོད་པ་བྱར་རུང་བར་བསྟན་པ་འདུག་པར་བྱེད་ཅིང་། དེ་ལ་གལ་ཏེ་དགེ་བསྙེན་མ་ཡིད་ཆེས་པའི་ཚིག་དང་ལྡན་པས་ཆོས་གསུམ་པོ་ཕམ་པར་གྱུར་པའམ། དགེ་འདུན་ལྷག་མའམ། ལྟུང་བྱེད་ལས་ཆོས་གང་ཡང་རུང་བར་སྨྲས་པར་གྱུར་ལ། དགེ་སློང་གིས་འདུག་པར་ཁས་བླངས་ན། ཆོས་གསུམ་པོ་ཕམ་པར་གྱུར་པའམ། དགེ་འདུན་གྱི་ལྷག་མའམ། ལྟུང་བྱེད་ལས། ཆོས་གང་ཡང་རུང་བས་བྱེད་དུ་གཞུག་ཅིང་། དགེ་སློང་དེ་ལ་དགེ་བསྙེན་མ་ཡིད་ཆེས་པའི་ཚིག་དང་ལྡན་པས། ཆོས་གང་དང་གང་གིས་སྨྲས་པར་གྱུར་པའི་ཆོས་དེ་དང་དེས་དགེ་སློང་དེ་བྱེད་དུ་གཞུག་སྟེ། དེ་ནི་མ་ངེས་པའི་ཆོས་སོ།། 1

ཡང་དགེ་སློང་གང་བུད་མེད་ཀྱི་ཡུལ་དང་། ལྷན་ཅིག་གཅིག་པུ་གཅིག་དང་དབེན་པ་སྐབས་ཡོད་པ་ན། འདོད་པ་བྱར་མི་རུང་བར་བསྟན་པ་ལ་འདུག་པར་བྱེད་ཅིང་། དེ་གལ་ཏེ་དགེ་བསྙེན་མ་ཡིད་ཆེས་པའི་ཚིག

[1] རྩིག་པའམ་སབ་མོའམ། ཡོལ་བས་བསྐྱབས་པའོ། (Tshu, folio 71).

དང་ལྡན་པས། ཆོས་གཉིས་པོ་དགེ་འདུན་ལྷག་མའམ། ལྟུང་བྱེད་ལས་ཆོས་གང་ཡང་རུང་བས་སྨྲས་པར་གྱུར་ལ། དགེ་སློང་གིས་འདུག་པར་ཁས་བླངས་ན། ཆོས་གཉིས་པོ་དགེ་འདུན་ལྷག་མའམ། ལྟུང་བྱེད་ལས་ཆོས་གང་ཡང་རུང་བས་བྱེད་དུ་གཞུག་ཅིང་། དགེ་སློང་དེ་ལ་དགེ་བསྙེན་མ་ཡིད་ཆེས་པའི་ཚིག་དང་ལྡན་པས། ཆོས་གང་དང་གང་གིས་སྨྲས་པར་གྱུར་པའི་ཆོས་དེ་དང་དེས། དགེ་སློང་དེ་བྱེད་དུ་གཞུག་སྟེ། དེ་ཡང་མ་ངེས་པའི་ཆོས་སོ།། 2

ཚེ་ དང་ ལྡན་པ་ དག་ བདག་ གིས་མ་ངེས་ པའི་ཆོས་གཉིས་པོ་ དག་བཏོན་ཟིན་ཏོ། དེ་ལ་བདག་གིས་ཚེ་དང་ལྡན་པ་དག་ལ་ཅི་འདི་ལ་ཁྱེད་ཡོངས་སུ་དག་གམ་ཞེས་དྲིའོ། ཅི་འདི་ལ་ཁྱེད་སོངས་སུ་དག་གམ་ཞེས་ལན་གཉིས་ལན་གསུམ་དུ་དྲིའོ། འདི་ལ་ཚེ་དང་ལྡན་པ་དག་ཡོངས་སུ་དག་ན་འདི་ལྟར་ཅང་མི་སྨྲ་བས་དེ་དེ་བཞིན་དུ་འཛིན་ཏོ།།

སྤང་བའི་ལྟུང་བྱེད་ཀྱི་ཆོས་སུམ་བཅུ།

སྡོམ་ལ།

འཆང་བ་འབྲལ་བ་འཛོག་པ་དང་།
འཁྲུར་འཇུག་པ་དང་ལེན་པ་དང་།
སློང་དང་སྟོད་གཡོགས་སྨད་གཡོགས་བཅས།
རིན་ཐང་སོ་སོར་བསྐུར་བའོ།།

ཚེ་དང་ལྡན་པ་དག་སྤང་བའི་ལྟུང་བྱེད་ཀྱི་ཆོས་སུམ་ཅུ་པོ་འདི་དག་ནི། ཟླ་བ་ཕྱེད་ཕྱེད་ཅིང་སོ་སོར་ཐར་པའི་མདོ་འདོན་པ་ལས་འབྱུང་ངོ་༎

དགེ་སློང་ཆོས་གོས་ཟིན་པས། སྲ་བརྐྱང་ཕྱུང་ན་ཞག་བཅུའི་བར་དུ་གོས་ལྷག་པ་རྣ་པར་མ་བརྟགས་པ་བཅང་བར་བྱའོ། དེ་ལས་འདས་པར་འཆང་ན་སྤང་བའི་ལྟུང་བྱེད་དོ༎ 1

དགེ་སློང་ཆོས་གོས་ཟིན་པས་སྲ་བརྐྱང་ཕྱུང་ན། གལ་ཏེ་ནུབ་གཅིག་ཀྱང་ཆོས་གོས་གསུམ་ལས་ཆོས་གོས་གང་ཡང་རུང་བ་དང་། འཚམས་ཀྱི་ཕྱིར་རོལ་ཏུ་འབྲལ་བར་བྱེད་ན། དགེ་འདུན་གྱིས་གནང་བ་མ་གཏོགས་ཏེ། སྤང་བའི་ལྟུང་བྱེད་དོ༎ 2

དགེ་སློང་ཆོས་གོས་ཟིན་པས་སྲ་བརྐྱང་ཕྱུང་ན། དུས་མ་ཡིན་པའི་གོས་ཤིག་རྙེད་ལ་འདོད་ན་དགེ་སློང་དེས་ཆོས་གོས་དེ་བླང་བར་བྱའོ། བླངས་ནས་གལ་ཏེ་ལངས་ན་མྱུར་བ་ཁོ་ནར་གོས་སུ་བྱས་ལ་བཅང་བར་བྱའོ། གལ་ཏེ་མི་ལངས་ལ་ཁ་མ་ལངས་པ་ཁ་སྐོང་བའི་གོས་ལ་རེ་བ་ཡོད་ན། དགེ་སློང་དེས་ཆོས་གོས་དེ་ཟླ་བ་གཅིག་གི་མཐར་བཞག་པར་བྱའོ། དེ་ལས་འདས་པར་འཇོག་ན་སྤང་བའི་ལྟུང་བྱེད་དོ༎ 3

ཡང་དགེ་སློང་གང་དགེ་སློང་མ་ཉེ་དུ་མ་ཡིན་པ་ལ་གོས་རྙིང་པ་འཁྲུར་འཇུག་གམ། འཚོད་དུ་འཇུག་གམ། འཚག་ཏུ་འཇུག་ན་སྤང་བའི་ལྟུང་བྱེད་དོ༎ 4

ཡང་དགེ་སློང་གང་དགེ་སློང་མ་ཉེ་དུ་མ་ཡིན་པ་ལས་གོས་ལེན་ན་བརྗེས་པ་མ་གཏོགས་ཏེ། སྤང་བའི་ལྟུང་བྱེད་དོ༎ 5

ཡང་དགེ་སློང་གང་ཁྱིམ་བདག་གཾ། ཁྱིམ་བདག་གི་ཆུང་མ་ཉེ་དུ་མ་ཡིན་པའི་གན་དུ་སོང་སྟེ། གོས་སློང་ན་དུས་མ་གདོགས་ཏེ། སྤང་བའི་ལྟུང་བྱེད་དོ།།

དེ་ལ་དུས་ནི་འདི་ཡིན་ཏེ། དགེ་སློང་གོས་ཕྲོགས་སམ། གོས་རླག་གམ། གོས་ཚིག་གམ། གོས་རླུང་གིས་ཁྱེར་རཾ། གོས་ཆུས་ཁྱེར་ན། དེ་ལ་དེ་ནི་དུས་ཡིན་ནོ།། 6

དགེ་སློང་གོས་ཕྲོགས་སམ། གོས་རླག་གམ། གོས་ཚིག་གམ། གོས་རླུང་གིས་ཁྱེར་རམ། གོས་ཆུས་ཁྱེར་ན། ཁྱིམ་བདག་གམ། ཁྱིམ་བདག་གི་ཆུང་མ་ཉེ་དུ་མ་ཡིན་པའི་གན་དུ་སོང་ལ་གོས་བསླང་བར་བྱའོ། དེ་ལ་གལ་ཏེ་བྲམ་ཟེའམ། ཁྱིམ་བདག་དད་པ་ཞིག་གིས། དུས་ཀྱིས་གོས་མང་པོ་སྟོབས་པ་འདོད་ན། དགེ་སློང་དེས་དེ་ལས་གོས་སྟོད་གཡོགས་སྨད་གཡོགས་དང་བཅས་པའི་མཐར་ཐུག་པ་བླང་བར་བྱའོ། དེ་ལས་ལྷག་པར་ལེན་ན་སྤང་བའི་ལྟུང་བྱེད་དོ།། 7

དགེ་སློང་གི་ཕྱིར་ཁྱིམ་བདག་གམ། ཁྱིམ་བདག་གི་ཆུང་མ་ཉེ་དུ་མ་ཡིན་པས་གོས་ཀྱི་རིན་དག་སྤགས་ནས། བདག་གི་གོས་ཀྱི་རིན་འདི་དག་གིས་གོས་འདི་དང་། འདི་ལྟ་བུ་ཞིག་ཉོས་ལ། དགེ་སློང་མིང་འདི་ཞེས་བྱ་བ་འོངས་པ་དང་། དེ་ལ་གོས་ཚུང་བ། དུས་སུ་བསྐོན་ནོ་སྙམ་པ་ལས་དེ་ན་གལ་ཏེ་དགེ་སློང་དེ་ལ་སྔར་མ་བསྟབས་པར་རྟོགས་པ་འགའ་ཞིག་བྱུང་སྟེ། བཟང་པོ་འདོད་པའི་ཕྱིར་ཁྱིམ་བདག་གམ། ཁྱིམ་བདག་གི་ཆུང་མ་ཉེ་དུ་མ་ཡིན་པ་དེའི་གན་དུ་སོང་ནས། འདི་སྐད་ཅེས་ཚེ་དང་

ལྡན་པས་བདག་གི་ཕྱིར་གོས་ཀྱི་རིན་གང་དག་སྤགས་པའི་གོས་ཀྱི་རིན་དེ་དག་གིས་ཚེ་དང་ལྡན་པ་གོས་འདི་དང་། འདི་ལྟ་བུ་ཞིག་ཉོས་ལ་བདག་ལ་གོས་རུང་བ། དུས་སུ་ལེགས་པར་སྐོན་ཅིག་ཅེས་སྨྲས་ཏེ། གོས་གྲུབ་པ་ན་སྤང་བའི་ལྟུང་བྱེད་དོ॥ 8

དགེ་སློང་གི་ཕྱིར་ཁྱིམ་བདག་དང་། ཁྱིམ་བདག་གི་ཆུང་མ་ཉེ་དུ་མ་ཡིན་པས་གོས་ཀྱི་རིན་སོ་སོ་བ་དག་སྤགས་ནས། བདག་ཅག་གཉིས་ཀྱིས་གོས་ཀྱི་རིན་སོ་སོ་བ་འདི་དག་གིས། གོས་འདི་དང་འདི་ལྟ་བུ་སོ་སོ་བ་དག་ཉོས་ལ། དགེ་སློང་མིང་འདི་ཞེས་བྱ་བ་འོངས་པ་དང་། བདག་ཅག་གཉིས་ཀྱི་སོ་སོ་ནས། དེ་ལ་གོས་རུང་བ་དུས་སུ་བསྐོན་ནོ། སྙམ་པ་ལས་དེ་ན་གལ་ཏེ་དགེ་སློང་དེ་ལ་སྔར་མ་བསྟབས་པར་རྣམ་པར་རྟོག་པ་འགའ་ཞིག་བྱུང་སྟེ། བཟང་པོ་འདོད་པའི་ཕྱིར་ཁྱིམ་བདག་དང་། ཁྱིམ་བདག་གི་ཆུང་མ་ཉེ་དུ་མ་ཡིན་པ་དེ་དག་གི་གན་དུ་སོང་ནས་འདི་སྐད་ཅེས། ཚེ་དང་ལྡན་པ་དག་གིས་བདག་གི་ཕྱིར་གོས་ཀྱི་རིན་སོ་སོ་བ་དག་སྤགས་པའི་གོས་ཀྱི་རིན་སོ་སོ་བ་དེ་དག་གིས་ཚེ་དང་ལྡན་པ་དག་གོས་འདི་དང་འདི་ལྟ་བུ་སོ་སོ་བ་དག་ཉོས་ལ་གཉིས་འདུས་ཏེ། བདག་ལ་གོས་རུང་བ་ཅིག་དུས་སུ་ལེགས་པར་བསྐོན་ཅིག་ཅེས་སྨྲས་ཏེ། གོས་གྲུབ་པ་ན་སྤང་བའི་ལྟུང་བྱེད་དོ॥ 9

དགེ་སློང་གི་ཕྱིར་རྒྱལ་པོའམ། བློན་པོ་ཆེན་པོའམ། བྲམ་ཟེའམ། ཁྱིམ་བདག་གམ། གྲོང་རྡལ་གྱི་མིའམ། ཡུལ་མིའམ། ནོར་ཅན་ནམ། ཚོང་དཔོན་ནམ། དེད་དཔོན་གྱིས་པོ་ཉའི་ལག་ཏུ་གོས་ཀྱི་རིན་དག་བསྐུར་

བར་གྱུར་ལ། དེ་ནས་པོ་ཥ་དེ་གོས་ཀྱི་རིན་དེ་དག་ཁྱེར་ནས། དགེ་སློང་དེ་ག་ལ་བ་དེར་སོང་སྟེ་ཕྱིན་ནས། དགེ་སློང་དེ་ལ་འདི་སྐད་ཅེས་འཕགས་པ་མཁྱེན་པར་མཛོད་ཅིག། ཁྱོད་ལ་རྒྱལ་པོའམ། བློན་པོ་ཆེན་པོའམ། བྲམ་ཟེའམ། ཁྱིམ་བདག་གམ། གྲོང་རྡལ་གྱི་མིའམ། ཡུལ་གྱི་མིའམ། ནོར་ཅན་ནམ། ཚོང་དཔོན་ནམ། དེད་དཔོན་ཆེ་གེ་མོས་གོས་ཀྱི་རིན་འདི་དག་བསྐུར་གྱིས། འཕགས་པས་ཐུགས་བརྩེ་བའི་སླད་དུ་འདི་དག་བཞེས་ཤིག་ཅེས་ཟེར་ན། དགེ་སློང་དེས་པོ་ཥ་དེ་ལ་འདི་སྐད་ཅེས་ཚེ་དང་ལྡན་པ་པོ་ཥ། དགེ་སློང་དག་ནི་གོས་ཀྱི་རིན་དག་ལེན་དུ་མི་རུང་སྟེ། བདག་ཅག་གོས་རུང་བ་དུས་སུ་རྙེད་པ་ན་ནི་ལེན་ཏོ་ཞེས་བརྗོད་པར་བྱའོ། གལ་ཏེ་པོ་ཥ་དེ་དགེ་སློང་དེ་ལ་འདི་སྐད་ཅེས་འཕགས་པ་རྣམས་ཀྱི་ཞལ་ཏ་བགྱིད་པ། འཕགས་པ་རྣམས་ཀྱི་ཞལ་ཏ་ཉམས་སུ་ལེན་པ། གང་ལགས་པ་འགའ་མཆིས་སམ་ཞེས་ཟེར་ན། དགེ་སློང་གོས་འདོད་པས་པོ་ཥ་འདི་ནི་དགེ་སློང་རྣམས་ཀྱི་ཞལ་ཏ་བྱེད་པ་སྟེ། འདི་ནི་དགེ་སློང་རྣམས་ཀྱི་ཞལ་ཏ་ཉམས་སུ་ལེན་པའོ་ཞེས། ཀུན་དགའ་ར་བའམ། དགེ་བསྙེན་ཞལ་ཏ་བྱེད་པ་བསྟན་པར་བྱའོ། དེ་ནས་པོ་ཥ་དེས་གོས་ཀྱི་རིན་དེ་དག་ཁྱེར་ནས། ཞལ་ཏ་བྱེད་པ་ག་ལ་བ་དེར་འགྲོ་བར་བྱ་ཞིང་། ཕྱིན་ནས་ཞལ་ཏ་བྱེད་པ་ལ་འདི་སྐད་ཅེས་ཚེ་དང་ལྡན་པ་ཞལ་ཏ་བྱེད་པ། ཤེས་པར་གྱིས་ཤིག། ཁྱོད་ཀྱིས་གོས་ཀྱི་རིན་འདི་དག་གིས། གོས་འདི་དང་འདི་ལྟ་བུ་ཞིག་ཉོས་ལ། དགེ་སློང་མིང་འདི་ཞེས་བྱ་བ་འོངས་པ་དང་། དེ་ལ་གོས་རུང་བ་དུས་སུ་བསྐོན་ཅིག་ཅེས་བརྗོད་པར་བྱའོ། དེ་ནས་པོ་ཥ་དེས

ཞལ་ད་བྱེད་པ་དེ་ལ་ཤིན་ཏུ་ལེགས་པར་ཡང་དག་པར་བསྒོ་ཞིང་ཡང་དག་པར་བསྟན་ནས་དགེ་སློང་དེ་གལ་བ་དེར་འགྲོ་བར་བྱ་ཞིང་ཕྱིན་ནས། དགེ་སློང་དེ་ལ་འདི་སྐད་ཅེས་འཕགས་པས་ཞལ་ད་བགྱིད་པ་བསྟན་པ་གང་ལགས་པ་དེ་ལ། བདག་གིས་ཡང་དག་པར་བསྟན་ལགས་ཀྱིས་དེའི་གན་དུ་བཞུད་ཅིག་དང་། དེས་ཁྱོད་ལ་གོས་རུང་བ་དུས་སུ་བསྙོན་པར་འགྱུར་རོ། ཞེས་བརྗོད་པར་བྱའོ། དགེ་སློང་གོས་འདོད་པས་ཞལ་ད་བྱེད་པའི་གན་དུ་སོང་ནས། ཚེ་དང་ལྡན་པ་ཞལ་ད་བྱེད་པ་བདག་གོས་འདོད་དོ། ཚེ་དང་ལྡན་པ་ཞལ་ད་བྱེད་པ་བདག་གོས་འདོད་དོ་ཞེས་ལན་གཉིས་ལན་གསུམ་དུ་བསྐུལ་བར་བྱ། དྲན་པར་བྱའོ། ལན་གཉིས་ལན་གསུམ་དུ་བསྐུལ་ཞིང་དྲན་པར་བྱས་པ་ན། གལ་ཏེ་གོས་དེ་གྲུབ་ན་དེ་ལྟ་ན་ལེགས། གལ་ཏེ་མ་གྲུབ་ན་ལན་བཞི་ལན་ལྔ་ལན་དྲུག་གི་བར་དུ་ཕྱོགས་སུ་ཅང་མི་ཟེར་བར་བསྡད་པར་བྱའོ། ལན་བཞི་ལན་ལྔ་ལན་དྲུག་གི་བར་དུ་ཕྱོགས་སུ་ཅང་མི་སྨྲ་བར་བསྡད་པ་ན། གལ་ཏེ་གོས་དེ་གྲུབ་ན་དེ་ལྟ་ན་ལེགས། གལ་ཏེ་མ་གྲུབ་ན། དེའི་འོག་ཏུ་གོས་བསྒྲུབ་པའི་ཕྱིར། བརྩལ་ཏེ་གོས་གྲུབ་ན། སྤང་བའི་ལྟུང་བྱེད་དོ།།

གལ་ཏེ་མ་གྲུབ་ན་ཕྱོགས་གང་ནས་གོས་ཀྱི་རིན་དེ་དག་འོངས་པ་དེར་བདག་འགྲོ་བར་བྱའོ། ཡང་ན་ཡིད་བརྟན་པའི་པོ་ཉ་ལས་ཚེ་དང་ལྡན་པ་དག་གི་དགེ་སློང་ཆེ་གེ་མོ་འི་ཕྱིར་གོས་ཀྱི་རིན་གང་དག་བསྐུར་བ་དེ་དག་ནི། དགེ་སློང་དེའི་དོན་ཅིར་ཡང་མ་གྲུབ་ཀྱིས་ཤེས་པར་གྱིས་ཤིག ཚེ་དང་ལྡན་པ་དག་གི་རང་གིས་ནོར་ཆུད་མ་གཟན་ཅིག་ཅེས་སྨྲོང་པར་བྱ་སྟེ། དེ་ལ་དེ་ནི་ཚིག་ཡིན་ནོ།། 10

སྨོས་ལ།

སྲིན་བལ་འབའ་ཞིག་ཆ་གཉིས་དང་།
དྲུག་དང་མཐོ་གང་ལམ་དང་ནི།
འཁྲུ་བ་དང་ནི་གསེར་དངུལ་དང་།
མངོན་མཚན་ཅན་དང་ཉོ་ཚོང་ངོ་།།

ཡང་དགེ་སློང་གང་སྲིན་བལ་གྱི་སྟན་གསར་པ་བྱེད་ན་སྤང་བའི་ལྟུང་བྱེད་དོ།། 11

ཡང་དགེ་སློང་གང་ལུག་བལ་ནག་པོ་འབའ་ཞིག་གི་སྟན་གསར་པ་བྱེད་ན། སྤང་བའི་ལྟུང་བྱེད་དོ།། 12

དགེ་སློང་གི་སྟན་གསར་པ་བྱེད་ན་ཆ་གཉིས་ནི། ལུག་བལ་ནག་པོ་འབལ་ཞིག་ལས་གཞུག་པར་བྱའོ། གསུམ་པ་ནི་དཀར་པོ་ལས་བཞི་པ་ནི་འཁོབ་བལ་ལས་གཞུག་པར་བྱའོ། གལ་ཏེ་དགེ་སློང་གིས་ཆ་གཉིས་ལུག་བལ་ནག་པོ་འབའ་ཞིག་ལས་མ་བཙུག་གམ། གསུམ་པ་དཀར་པོ་ལས། བཞི་པ་འཁོབ་བལ་ལས་མ་བཙུག་པར་སྟན་གསར་པ་བྱེད་ན། སྤང་བའི་ལྟུང་བྱེད་དོ།། 13

དགེ་སློང་གིས་སྟན་གསར་པ་བྱེད་ན། མི་འདོད་བཞིན་དུ་ལོ་དྲུག་ཏུ་བཅང་བར་བྱའོ། གལ་ཏེ་དགེ་སློང་ལོ་དྲུག་ཚུན་ཅད་དུ་སྟན་རྙིང་པ་དེ་སྤངས་ཀྱང་རུང་། མ་སྤངས་ཀྱང་རུང་། སྟན་གསར་པ་གཞན་བྱེད་ན། དགེ་འདུན་གྱིས་གནང་བ་མ་གདོགས་དེ། སྤང་བའི་ལྟུང་བྱེད་དོ།། 14

1 མགོ་བལ། བཏྲ་བལ། ལྷོ་བ་ལ་ཟེར། (Tshu, folio 83).

དགེ་སློང་གིས་གདིང་བ་གསར་པ་བྱེད་ན། གསར་པ་ཁ་དོག་མི་སྡུག་པར་བྱ་བའི་ཕྱིར། གདིང་བ་རྙིང་པ་བདེ་བར་གཤེགས་པའི་མཐོ་གང་འཁོར་བས་གླན་པར་བྱའོ། གལ་ཏེ་དགེ་སློང་གིས་གདིང་བ་གསར་པ་ཁ་དོག་མི་སྡུག་པར་བྱ་བའི་ཕྱིར། གདིང་བ་རྙིང་པ་བདེ་བར་གཤེགས་པའི་མཐོ་གང་འཁོར་བས་ མ་གླན་ པར་ གདིང་བ་ གསར་པ་ སྤྱོད་ན་ སྤང་ བའི་ལྟུང་བྱེད་དོ།། 15

དགེ་སློང་ ལམ་ དུ་ ཞུགས་པས་ ལུག་བལ་དག་ རྙེད་ལ་འདོད་ ན་དགེ་སློང་རེས་ཁྱེར་བར་བྱའོ། ཁྱེར་ནས་ཁྱེར་བ་མེད་ན་དཔག་ཚད་གསུམ་གྱི་མཐའི་བར་དུ་བདག་ཉིད་ཀྱིས་བཀུར་བར་བྱའོ། དེ་ལས་འདས་པར་ཁྱེར་ན་སྤང་བའི་ལྟུང་བྱེད་དོ།། 16

ཡང་དགེ་སློང་གང་དགེ་སློང་མ་ཉེ་དུ་མ་ཡིན་པ་ལ། ལུག་བལ་འཁྲུར་འཇུག་གམ། འཚེད་དུ་འཇུག་གམ། རྨེལ་དུ་འཇུག་ན། སྤང་བའི་ལྟུང་བྱེད་དོ།། 17

ཡང་ དགེ་ སློང་ གང་ རང་ གི་ ལག་ གིས་ གསེར་ དངུལ་ ལེན་ ཏམ། གཞན་ལེན་དུ་འཇུག་ན་སྤང་བའི་ལྟུང་བྱེད་དོ།། 18

ཡང་ དགེ་སློང་ གང་ མངོན་ མཚན་ ཅན་[1]གྱི་སྤྱོད་པ་རྣམ་པ་སྣ་ཚོགས་བྱེད་ན་སྤང་བའི་ལྟུང་བྱེད་དོ།། 19

ཡང་དགེ་སློང་ གང་ཉོ་ཚོང་ རྣམ་པ་སྣ་ཚོགས་བྱེད་ ན་ སྤང་ བའི་ལྟུང་བྱེད་དོ།། 20

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[1] ཁེ་སྤོགས་འདོད་པ་ཉིད་ཀྱིས་པ་ན་དང་རིན་པོ་ཆེ་ལ་སོགས་པ་སྤྱོད་པ་ལས་སོ (Bu, folio 320).

སྨོས་ལ།

ལྷུང་བཟེད་གཉིས་དང་ཐ་ག་གཉིས།
བྱིན་འཕྲོག་སྤོན་བླ་ཐ་ཆུངས་དང་།
དགོན་པ་པ་དང་རས་ཆེན་དང་།
བསྐོས་པ་དང་ནི་སོགས་འཇོག་གོ ༎

ཡང་དགེ་སློང་གི་ ལྷུང་བཟེད་ལྷག་པ་ ཞག་བཅུའི་ བར་དུ་བཅང་བར་བྱའོ། དེ་ལས་འདས་པར་འཆང་ན་སྤང་བའི་ལྟུང་བྱེད་དོ༎ 21

ཡང་དགེ་སློང་གང་། ལྷུང་བཟེད་ལྷན་པ་ལྔ་མེད་པ་སྤྱད་བཟོད་པ་ཡོད་བཞིན་དུ། བཟང་པོ་འདོད་པའི་ཕྱིར་ལྷུང་ཟེད་སར་པ་གཞན་ཚོལ་ཞིང་ལྷུང་བཟེད་གྲུབ་ན་སྤང་བའི་ལྟུང་བྱེད་དོ༎

དགེ་སློང་དེས་ལྷུང་ བཟེད་དེ་དགེ་སློང་གི་འཁོར་ལ་དབུལ་བར་བྱའོ། དགེ་སློང་གི་ འཁོར་དེའི་ ལྷུང་ བཟེད་ ཐ་མར་ གྱུར་ པ་ གང་ཡིན་ པ་དེ་དགེ་སློང་དེ་ལ། དགེ་སློང་ཁྱོད་ཀྱིས་ལྷུང་བཟེད་འདི་བྱིན་གྱིས་བརླབས་པར་མི་བྱ། གདང་བ་མི་བྱ། གཞན་ལ་སྦྱིན་པར་མི་བྱ་བར། ཆག་པའི་མཐར་ཐུག་གི་བར་དུ་ཁྱད་ཀྱིས་དལ་བུས་སྤྱད་པར་བྱའོ། ཞེས་སྦྱིན་པར་བྱ་སྟེ། དེ་ལ་དེ་ནི་ཆོ་ག་ཡིན་ནོ༎ 22

ཡང་ དགེ་སློང་ གང་ རང་གིས་བསླངས་པའི་དོག་པས་ཐ་ག་པ་ཉེ་དུ་མ་ཡིན་པ་ལ་འཐག་ཏུ་འཇུག་ན། གོས་གྲུབ་ན་སྤང་བའི་ལྟུང་བྱེད་དོ༎ 23

དགེ་སློང་གི་ཕྱིར་ཁྱིམ་བདག་གམ། ཁྱིམ་བདག་གི་ཆུང་མ་ཉེ་དུ་མ་ཡིན་ པས་ ཐ་ག་ པ་ཉེ་ དུ་མ་ཡིན་པ་ ལ་གོས་ འཐག་ཏུ་ བཅུག་པ་ ལས།

དེ་ལ་གལ་ཏེ་དགེ་སློང་དེ་ལ་ སྤུར་མ་བསྒྲུབས་པར་རྣམ་པར་རྟོག་པ་འགའ་ཞིག་བྱུང་ནས། ཐ་ག་པ་ཉེ་དུ་མ་ཡིན་པའི་གནས་སུ་སོང་སྟེ། འདི་སྐད་ཅེས་ཚོ་དང་ལྡན་པ་ཐ་ག་པ་ཤེས་པར་གྱིས་ཤིག། གོས་འདི་ནི་ཁོ་བོའི་ཕྱིར་འཐག་གིས། ཚོ་དང་ལྡན་པ་ཐ་ག་པ་གོས་འདི་ཞིང་ཆེ་བ་དང་། ཁྲུན་རིང་བ་དང་། ཐར་གྱིས་ཞག་པ་དང་། ཐག་རན་བཟང་བར་ལེགས་པར་གྱིས་ཤིག། ཚོ་དང་ལྡན་པ་ཐ་ག་པ་འདི་ལྟར་ཁོ་བོས་གླ་རྔན་འདི་ལྟ་སྟེ། བཟའ་བའམ། བཅའ་བ་ཙམ་འམ། བཟའ་རྒྱུ་ཅུང་ཟད་ཅིག་སྦྱིན་ནོ་ཞེས་སྨྲས་ནས། དེ་ལ་གལ་ཏེ་དགེ་སློང་དེས་གོས་སྒྲུབ་པའི་ཕྱིར་གླ་རྔན་འདི་ལྟ་སྟེ། བཟའ་བའམ། བཅའ་བ་ཙམ་འམ། བཟའ་རྒྱུ་ཅུང་ཟད་ཅིག་སྦྱིན་གྱིས་གོས་གྲུབ་ན་སྤང་བའི་ལྟུང་བྱེད་དོ༎ 24

ཡང་ དགེ་སློང་ གང་ དགེ་སློང་ ལ་གོས་ བྱིན་ ནས་ དེའི་ འོག་ ཏུ་ ཁྲོས་འཁྲུགས་ཧམས་པར་གྱུར་ཏེ། ཡིད་མ་རངས་ནས། འཕྲོག་གམ། འཕྲོག་ཏུ་འཇུག་ཅིང་། དེ་ལ་འདི་སྐད་ཅེས་དགེ་སློང་ཁྱོད་ལ་གོས་མི་སྦྱིན་གྱིས། ཕྱིར་བྱིན་ཅིག་ཅེས་ཟེར་ན། དགེ་སློང་དེས་ལྷག་མ་ཡོད་པ་ཕྱིར་སྦྱིན་པར་བྱ་ཞིང་བཏང་ན་སྤང་བའི་ལྟུང་བྱེད་དོ༎ 25

དགེ་སློང་གིས་སྟོན་ཟླ་ཐ་ཚངས། ཉེར་ཞག་བཅུས་མ་ཚང་བ་ཚུན་ཆད་དུ། བརྟད་པ་ལས་བྱུང་བའི་གོས་ཤིག་རྙེད་ལ། འདོད་ན་དགེ་སློང་དེས་གོས་དེ་སླང་བར་བྱའོ། བསླངས་ནས་གོས་སྦྱིན་པའི་དུས་ཀྱི་བར་དུ་བཅང་བར་བྱའོ། དེ་ལས་འདས་པར་འཆང་བ་སྤང་བའི་ལྟུང་བྱེད་དོ༎ 26

དགེ་སློང་ རབ་ཏུ་མང་པོ་ དག་ གནས་ མལ་དགོན་ པ་དོགས་པ་དང་ བཅས་པར་གྲགས་པ། འཇིགས་པ་དང་བཅས་པར་གྲགས་པ། འཇིགས་ པ་ཐ་དད་པས། འཇིགས་སུ་རུང་བ་དང་བཅས་པར་གྲགས་པ་དག་ཏུ་ དབྱར་ཁྱི་མར་གྱུར་ལ། དགེ་སློང་དགོན་པ་བས། འདོད་ན་ཆོས་གོས་ གསུམ་ལས། ཆོས་གོས་གང་ཡང་རུང་བ་ཁྱིམ་གཞན་དུ་བཞག་པར་བྱའོ། དགེ་སློང་དགོན་ པ་པ་ལ་འཚམས་[1]ཀྱི་ཕྱི་རོལ་ཏུ་འགྲོ་དགོས་པ་དེ་ལྟ་བུའི་ རྐྱེན་ཞིག་བྱུང་ན། དགེ་སློང་དགོན་པ་པ་དེས། ཞག་དྲུག་གི་མཐའ་ ཚུན་ ཅད་ དུ་ཆོས་གོས་དེ་ དང་ འཚམས་ ཀྱི་ཕྱི་རོལ་དུ་ འབྲལ་ བར་ བྱའོ། དེ་ལས་འདས་པར་འབྲལ་ན་སྤང་བའི་ལྟུང་བྱེད་དོ།། 27

དགེ་སློང་ རྣམས་ ཀྱིས་ སོ་ག་ རྙིས་ ཀྱི་ ཟླ་ བ་གཅིག་ ལུས་ན་དབྱར་གྱི་ གོས་རས་ཆེན་བཙལ་བར་བྱའོ། དབྱར་ཟད་ནས་འོག་ཏུ་ཟླ་བ་ཕྱེད་ཀྱི་ བར་དུ་བཅང་བར་བྱའོ། གལ་ཏེ་དགེ་སློང་གིས་སོ་ག་རྣམས་ཀྱི་ཟླ་བ་ གཅིག་ལུས་པའི་སྔོན་རོལ་ཏུ་ དབྱར་གྱི་གོས་རས་ཆེན་ཚོལ་བར་བྱེད་དམ། དབྱར་ ཟད་ ནས་འོག་ ཏུ་ ཟླ་ བ་ཕྱེད་ ལས་ ལྷག་ པར་ འཆང་ ན་སྤང་ བའི་ ལྟུང་བྱེད་དོ།། 28

ཡང་དགེ་སློང་གང་། དགེ་འདུན་ལ་བསྔོས་པའི་རྙེད་པ་ཤེས་བཞིན་ དུ་གང་ཟག་བདག་ལ་བསྒྱུར་དུ་འཇུག་ན། སྤང་བའི་ལྟུང་བྱེད་དོ།། 29

བཅོམ་ ལྡན་ འདས་ ཀྱིས་ དགེ་སློང་ ནད་ རྣམས་ ལ་ ཕན་ པ་སོ་སོར་ བསྟན་པར་བྱ་བའི་སྨན་གང་དག་བཀའ་སྩལ་པ་འདི་ལྟ་སྟེ། ཞུན་མར་

[1] ཆོས་གོས་ཀྱི་མཚམས་འཁོར་ལས་འདས་པའོ། (Tshu. folio 97).

དང་། འབྲུ་མར་དང་། སྦྲང་རྩི་དང་། བུ་རཾ་གྱི་དབུ་བ་དེ་དག་ལས། དགེ་སློང་ན་ བས་འདོད་ན་རང་གིས་ཞག་བདུན་བར་བྱིན་གྱིས་བརླབས་དེ། སོག་འཇོག་གིས་ ཡོངས་སུ་ལོངས་ སྤྱོད་ པས་ཡོངས་སུ་ ལོངས་སྤྱོད་ པར་བྱའོ། དེ་ལས་ འདས་ པར་ཡོངས་ སུ་ལོངས་ སྤྱོད་ པར་ བྱེད་ ན་སྤང་ བའི་ ལྟུང་ བྱེད་དོ།། 30

ཚེ་དང་ ལྡན་པ་ དག་ བདག་ གིས་ སྤང་ བའི་ ལྟུང་ བྱེད་ཀྱི་ ཆོས་ སུམ་ ཅུ་པོ་དག་གདོན་ཟིན་ཏོ།། དེ་ལ་བདག་གིས་ཚེ་དང་ལྡན་པ་དག་ལ། ཅི་འདི་ལ་ཁྱེད་ཡོངས་སུ་དག་གམ་ཞེས་དྲིའོ། ཅི་འདི་ལ་ཁྱེད་ཡོངས་སུ་དག་གམ་ཞེས་ལན་གཉིས་ལན་གསུམ་དུ་དྲིའོ། འདི་ལ་ཚེ་དང་ལྡན་པ་དག་ཡོངས་སུ་དག་ན། འདི་ལྟར་ཅང་མི་སྨྲ་བས་དེ་དེ་བཞིན་དུ་འཛིན་ཏོ།།

[བམ་པོ་གཉིས་པ]

ལྟུང་བྱེད་ཀྱི་ཆོས་དགུ་བཅུ།

སྤྱི་སྡོམ་ནི།

ཤེས་བཞིན་དང་ནི་ས་བོན་དང་།
མ་བསྐོས་པ་དང་ཡང་ཡང་དང་།
ཆུ་དང་ཁྱིམ་དང་བསམས་བཞིན་དང་།
འགྲོན་མང་རྐུན་མ་མཆོད་སྟོན་ནོ།།

སྡོམ་ལ།

རྫུན་སྐྱོན་དགེ་སློང་ཕྲ་མ་དང་།
སྐྱོ་སློགས་བྱེད་དང་སྟོན་པ་དང་།
འདོན་དང་གནས་ངན་ལེན་དང་ཆོས།
བཤེས་ངོར་བྱེད་དང་ཁྱད་དུ་གསོད།།

ཚེ་དང་ལྡན་པ་དག་ལྟུང་བྱེད་ཀྱི་ཆོས་དགུ་བཅུ་པོ་འདི་དག་ནི་ཟླ་བ་ཕྱེད་ཕྱེད་ཅིང་སོ་སོར་ཐར་པའི་མདོ་འདོན་པ་ལས་འབྱུང་ངོ་།།

ཤེས་བཞིན་དུ་རྫུན་དུ་སྨྲ་ན་ལྟུང་བྱེད་དོ།། 1

མིའི་སྐྱོན་ནས་སྨྲ་ན་ལྟུང་བྱེད་དོ།། 2

དགེ་སློང་ལ་ཕྲ་མ་བྱེད་ན་ལྟུང་བྱེད་དོ།། 3

ཡང་དགེ་སློང་གང་དགེ་སློང་འཐབ་པས་ཆོས་བཞིན་དུ་རྩོད་པ་སྨྲངས་པར་ཤེས་བཞིན་དུ་ཡང་ལས་ཀྱི་སྐྱོ་སློགས་བྱེད་ན་ལྟུང་བྱེད་དོ།། 4

ཡང་དགེ་སློང་གང་། བུད་མེད་ཀྱི་ཡུལ་ལ་ཚིག་ལྔའམ་དྲུག་ལས་ལྷག་པར་ཆོས་སྟོན་ན། རིག་པའི་སྐྱེས་པ་མ་གཏོགས་ཏེ་ལྟུང་བྱེད་དོ།། 5

ཡང་དགེ་སློང་གང་། གང་ཟག་བསྙེན་པར་མ་རྫོགས་པ་དང་ཚིག་གིས་ཆོས་འདོན་ན་ལྟུང་བྱེད་དོ།། 6

ཡང་དགེ་སློང་གང་གང་ཟག་ བསྙེན་པར་མ་རྫོགས་པ་ ལ་གནས་ངན་ལེན་གྱི་ལྟུང་བ་བརྗོད་ན། དགེ་འདུན་གྱིས་གནང་བ་མ་གཏོགས་ལྟུང་བྱེད་དོ།། 7

ཡང་དགེ་སློང་གང་། གང་ཟག་བསྙེན་པར་མ་རྫོགས་པ་ལ་མིའི་ཆོས་བླ་མ་བདེན་པར་སྨྲ་ན་ལྟུང་བྱེད་དོ།། 8

ཡང་དགེ་སློང་གང་། སྔར་ལེགས་པར་རུང་བར་བྱས་ནས་དེའི་འོག་ཏུ་འདི་སྐད་ ཅེས་ཚེ་དང་ལྡན་པ་དག་གིས་འདི་ ལྟར་ ཤེས་ངོར་བྱ་སྟེ[1]། དགེ་ འདུན་གྱི་རྙེད་ པར་ བསྔོས་ པ་བདག་གི་ གང་ཟག་ལ་བསྔོས་སོ་ཞེས་ཟེར་ན་ལྟུང་བྱེད་དོ།། 9

ཡང་དགེ་སློང་གང་། ཟླ་བ་ཕྱེད་ཕྱེད་ཅིང་སོ་སོར་ཐར་པའི་མདོ་གདོན་པ་འདོན་པ་ན། འདི་སྐད་ཅེས་ཚེ་དང་ལྡན་པ་དག་གང་དག་གིས་དགེ་སློང་ཉེས་འགྱོད་པ་དང་། ཡིད་ལ་གཅགས་པ་དང་། གནོད་པར་འགྱུར་བ་བསླབ་པའི་གཞི་ཕྲན་ཚེགས་རབ་ཏུ་ཕྲ་བ་འདི་དག་གིས། ཟླ་བ་ཕྱེད་ཕྱེད་ཅིང་ སོ་སོར་ཐར་པའི་མདོ་གདོན་ པ་བདོན་པ་ དག་གིས་ ཅི་ཞིག་བྱ་ཞེས་ཟེར་ཞིང་བསླབ་པ་ཁྱད་དུ་གསོད་ན་ལྟུང་བྱེད་དོ།། 10

[1] In the commentary བཤེས··· explained as མཛའ་བའི་ཕྱིར (Tshu, folio 220).

སྨྲོས་ལ།

ས་བོན་འཕྲུ་བ་བསྐྲོ་བ་དང་།
ཁྲི་དང་གདིང་དང་སྐྲོད་པ་དང་།
ཕྱིས་གཉེན་འབྱུང་བ་འདེབས་པ་དང་།
རིམ་པ་གཉིས་སུ་རྩིགས་པའོ།།

ས་བོན་གྱི་ཚོགས་དང་། འབྱུང་པོའི་གནས་[1] འཛིག་གམ། འཛིག་དུ་འཛུག་ན། ལྟུང་བྱེད་དོ།། 11

འཕྲུ་འམ་གཞོག་འཕྲུས་བྱེད་ན་ལྟུང་བྱེད་དོ།། 12

བསྐྲོ་བ་རྣལ་གཟོན་ན་ལྟུང་བྱེད་དོ།། 13

ཡང་དགེ་སློང་གང་། དགེ་འདུན་གྱི་ཁྲིའམ། ཁྲིའུ་འམ། སྔན་ཉང་ཚངས་ཅན་ནམ། ལ་བའམ། ཇུས་སམ། གོར་བུ་བླ་གབ་མེད་པར་གདིང་ངམ། འདིང་སུ་བཅུག་ནས་མ་བསྡུས་སམ། བསྡུད་དུ་མ་བཅུག་གམ། དགེ་སློང་འགྲོད་པ་ལ་མ་བཅོལ་བར་དེ་ནས་སོང་ན། དེ་འདྲ་བའི་རྐྱེན་མ་གཏོགས་ཏེ། ལྟུང་བྱེད་དོ།། 14

ཡང་དགེ་སློང་གང་། དགེ་འདུན་གྱི་གཙུག་ལག་ཁང་དུ་རྩའི་གདིང་བ་དང་། ལོ་མའི་གདིང་བ་བདིང་ངམ། གདིང་དུ་བཅུག་ནས། མ་བསྡུས་སམ། སྡུད་དུ་མ་བཅུག་གམ། དགེ་སློང་འཁོད་པ་ལ་མ་བཅོལ་བར། དེ་ནས་སོང་ན། དེ་འདྲ་བའི་རྐྱེན་མ་གཏོགས་ཏེ་ལྟུང་བྱེད་དོ།། 15

ཡང་དགེ་སློང་གང་། ཁྲིས་འཁྲུགས་རྩམ་པར་གྱུར་ཏེ། ཡིད་མ

[1] ཐིན་བུ་དང་། ཕྱེ་མ་ལེབ་དང་། སྦུལ་དང་། ཏྲེ་ལ་ཏ་ཀ་སོ་ཏ་ཧི་འབྱུང་པོ། (Tshu 106).

རངས་ནས། དགེ་འདུན་གྱི་གཙུག་ལག་ཁང་ནས། དགེ་སློང་སྐྱོད་དམ།
སྐྱོད་དུ་འཇུག་ན། དེ་འདྲ་བའི་རྐྱེན་མ་གཏོགས་ཏེ། ལྟུང་བྱེད་དོ॥ 16

ཡང་དགེ་སློང་གང་། དགེ་འདུན་གྱི་གཙུག་ལག་ཁང་ནས། དགེ་
སློང་དག་སྔོན་འཁོད་པར་ཤེས་བཞིན་དུ་ཕྱིས་འོངས་ན་སུ་ལ་གནོད་པ་
དེ་འགྲོ་བར་འགྱུར་བ་དེ་ཉིད་དུ་བྱས་ཏེ། ཕྱིས་གནོན་བྱས་ནས་སྟན་ལ་
ཉལ་ལམ། འདུག་ན་ལྟུང་བྱེད་དོ॥ 17

ཡང་ དགེ་སློང་ གང་ དགེ་ འདུན་ གྱི་ གཙུག་ ལག་ ཁང་ གི་སྟེང་ གི་
ནམ་ཁའ་ལ་ཐོག་ཐོར་བར། ཁྲིའམ། ཁྲིའུ་རྐང་བ་འབྱུང་བར་ཤེས་
བཞིན་དུ། ཤིད་ཀྱིས་འབབ་སྟེ། ཉལ་ལམ། འདུག་ན་ལྟུང་བྱེད་དོ॥ 18
ཡང་དགེ་སློང་གང་། ཤེས་བཞིན་དུ་སྲོག་ཆགས་དང་བཅས་
པའི་ཆུས་རྩྭའམ། ཤིང་བའམ། ས་ལ་འདེབས་སམ། འདེབས་སུ་
འཇུག་ན་ལྟུང་བྱེད་དོ॥ 19

ཡང་དགེ་སློང་གིས། གཙུག་ལག་ཁང་ཆེན་པོ་ཞིག་བརྩིག་ཏུ་
འཇུག་ན། སྒོའི་སྒྲུབས་དང་། གདན་པ་དང་། སྣང་བའི་གནས་ཇི་
ཙམ་པའི་འདུ་ཤེས་ཀྱིས་བརྟགས་པ་ནས་བརྩང་སྟེ། ཕ་གུའི་རིམ་པ་
འཇིམ་པ་དང་བཅས་པ་གཉིས་སམ་གསུམ་བརྩིག་པར་བྱའོ[1]། དེ་ལས་ལྷག་
པར་རྩིག་ན་ལྟུང་བྱེད་དོ॥ 20

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1 འཇིམ་པ་དང་ཕ་གུའི་ཁྲེལ་ལ་རིམ་གཉིས་སམ་གསུམ་ཞིག་བརྩིགས་ཤིག (Mu, folio 90).

སྨོས་ལ།

མ་བསྐོས་ཉི་མ་ནུབ་པ་དང་།
ཟས་དང་ཆོས་གོས་གཉིས་དག་དང་།
དོན་འཁྲུན་གྲུ་དང་དབེན་པ་གཉིས།
དགེ་སློང་མའི་སྦྱོར་བཅུག་པའོ ॥

ཡང་དགེ་སློང་གང་། དགེ་འདུན་གྱིས་མ་བསྐོས་པར་དགེ་སློང་མ་ལ་སྟོན་ན། ཆོས་འདི་ལྟ་བུ་དང་ལྡན་པ[1] མ་གཏོགས་ཏེ། ལྟུང་བྱེད་དོ॥ 21

དགེ་སློང་གང་དགེ་འདུན་གྱིས་བསྐོས་ཀྱང་། ཉི་མ་ནུབ་ཀྱི་བར་དུ་དགེ་སློང་མ་ལ་སྟོན་ན་ལྟུང་བྱེད་དོ॥ 22

དགེ་སློང་གང་དགེ་སློང་རྣམས་ལ་འདི་སྐད་ཅེས། དགེ་སློང་དག་ཟས་ཙུང་ཟད་ཙམ་གྱི་ཕྱིར་དགེ་སློང་མ་ལ་སྟོན་དོ་ཞེས་ཟེར་ན། ལྟུང་བྱེད་དོ॥ 23

ཡང་དགེ་སློང་གང་། དགེ་སློང་མ་ཉེ་དུ་མ་ཡིན་པ་ལ་གོས་སྦྱིན་ན། ལྟུང་བྱེད་དོ॥ 24

ཡང་དགེ་སློང་གང་། དགེ་སློང་མ་ཉེ་དུ་མ་ཡིན་པའི་གོས་བྱེད་ན། ལྟུང་བྱེད་དོ॥ 25

ཡང་དགེ་སློང་གང་། དགེ་སློང་མའི་དོན་འཁྲུན་དང་ལྷན་ཅིག་ཏུ་འཐམས་ནས། འགྲོན་ལམ་དུ་འཇུག་ན། དུས་མ་གཏོགས་ཏེ་ལྟུང་བྱེད་དོ ॥

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1 བསྐོས་པ་ཆོས་ལྔ་དང་ལྡན་པ། ཚུལ་ཁྲིམས་དང་ལྡན་པ་དང་། མང་དུ་ཐོས་པ་དང་། གནས་བརྟན་རྒྱལ་རབ་ལྟ་བུ། གྲོང་ཁྱེར་པའི་སྐད་དང་ལྡན་པ་དང་། དགེ་སློང་མ་ལུས་ཀྱིས་དག་པས་སྨུན་མ་ཕྱུང་བའོ། (Mu, folio 105).

དེ་ལ་དུས་ནི་འདི་ཡིན་ཏེ། ལམ་དོན་འཐུན་གྱིས་བགྲོད་པར་བྱ་བ། རོགས་པ་དང་བཅས་པར་གྲགས་པ། འཛིགས་པ་དང་བཅས་པར་གྲགས་པ། འཛིགས་པ་ཐ་དད་པས་འཛིགས་པ་དང་བཅས་པར་གྲགས་པ་ཞིག་ན། དེ་ལ་དེ་ནི་དུས་ཡིན་ནོ॥ 26

ཡང་དགེ་སློང་གང་། དགེ་སློང་མའི་དོན་འཐུན་དང་། ལྷན་ཅིག་འཐམས་ནས། གྲུ་ཅིག་ཏུ་འཛུག་ཅིང་། གྱེན་དུ་འགྲོའམ། ཐུར་དུ་འགྲོ་ན། ཐད་ཀར་ཕ་རོལ་ཏུ་འགྲོ་བ་མ་གཏོགས་ཏེ། ལྟུང་བྱེད་དོ॥ 27

ཡང་དགེ་སློང་གང་། བུད་མེད་ཀྱི་ཡུལ་དང་། ལྷན་ཅིག་གཅིག་པུ་གཅིག་དང་དབེན་པ་སྐབས་ཡོད་པ་ན་སྟན་ལ་འདུག་ན་ལྟུང་བྱེད་དོ॥ 28

ཡང་དགེ་སློང་གང་། དགེ་སློང་མ་དང་ལྷན་ཅིག་གཅིག་པུ་གཅིག་དང་། དབེན་པ་སྐབས་ཡོད་པ་ན། འགྲེང་ན་ལྟུང་བྱེད་དོ॥ 29

ཡང་དགེ་སློང་གང་། ཤེས་བཞིན་དུ་དགེ་སློང་མས་སྦྱོར་དུ་བཅུག་པའི་ཟས་ཟ་ན། སྔར་ཁྱིམ་དུ་བོས་པ་མ་གཏོགས་ཏེ་ལྟུང་བྱེད་དོ॥ 30

སྡོམ་ལ།

ཡང་ཡང་དང་ནི་འདུག་གནས་གཅིག།
ཕྱེ་དང་བཅའ་དང་སྐྱོབས་པ་དང་།
དུས་དང་དུས་མིན་སོག་འཇོག་དང་།
ཁ་ནས་མེད་དང་གསོད་པ་ཉིད॥

ཡང་ཡང་ཟ་ན་དུས་མ་གཏོགས་ཏེ་ལྟུང་བྱེད་དོ॥

དེ་ལ་དུས་ནི་འདི་ཡིན་ཏེ། ན་བ་དུས་སོ། ལས་[1]དུས་སོ། ལམ་དུས་སོ། གོས་སྦྱིན་པའི་ཚེ་དུས་སོ།། 31

འདུག་གནས་གཅིག་ཏུ་ཞག་ལོན་པའི་དགེ་སློང་མི་ན་བས། བསོད་སྙོམས་གཅིག་བཟའ་བར་བྱའོ། དེ་ལས་ལྷག་པ་ཟ་ན་ལྟུང་བྱེད་དོ།། 32

དགེ་སློང་རབ་ཏུ་མང་པོ་དག་ཁྱིམ་རྣམས་སུ་སོང་བ་ལས། གལ་ཏེ་དེ་དག་ལ་བྲམ་ཟེ་དང་། ཁྱིམ་བདག་དད་པ་ཅན་དག་གིས། ཕྱེ་དང་ཁུར་བ་དག་དུས་ཀྱིས་སྤོབས་པར་གྱུར་ལ། འདོད་ན་དགེ་སློང་དེ་དག་གིས། ལྷུང་བཟེད་གང་བ་གཉིས་སམ། གསུམ་བླང་བར་བྱའོ། དེ་ལས་ལྷག་པར་ལེན་ན་ལྟུང་བྱེད་དོ།།

ལྷུང་བཟེད་གང་བ་གཉིས་ སམ་ གསུམ་ བླངས་ནས་ཕྱི་རོལ་ཀུན་དགའ་ར་བར་སོང་ལ། དགེ་སློང་འཁོད་པ་རྣམས་ལ་ཡང་སྐྲོ་བཤའ་བྱ། བདག་ཅག་ཀྱང་བཟའ་བར་བྱ་སྟེ། དེ་ལ་དེ་ནི་ཚིག་ཡིན་ནོ།། 33

ཡང་དགེ་སློང་ གང་ ཟས་ཟོས་ཟིན་ཅིང་ སྤངས་པ་ལས་ ལྷག་པོར་མ་བྱས་པར་བཅའ་བའམ། བཟའ་བ་འཆའ་འམ་ཟ་ན་ལྟུང་བྱེད་དོ།། 34

ཡང་ དགེ་སློང་ གང་ ཤེས་ བཞིན་ དུ་དགེ་སློང་ ཟས་ཟིན་ཅིང་ སྤངས་པ་ལ། སྐབས་ཚོལ་ཞིང་ཅི་ནས་ཀྱང་དགེ་སློང་འདི་ཉེས་པ་འབྱུང་བར་བྱའོ་སྙམ་པ་དེ་ཉིད་རྒྱུན་དུ་བྱས་ནས་ཚེ་དང་ལྡན་པ་འདི་འཚོ་ཤིག། འདི་ཟོ་ཤིག་ཅེས་ལྷག་པོར་མ་བྱས་པའི་བཅའ་བ་དང་། བཟའ་བ་དུས་ཀྱིས་སྤོབས་ན་ལྟུང་བྱེད་དོ།། 35

[1] མཆོད་རྟེན་སོགས་ཀྱི་ལས་བྱ་བ། (Bu, folio 136).

འདུས་ཤིང་ཟ་ན་དུས་མ་གཏོགས་ཏེ་ལྟུང་བྱེད་དོ༎

དེ་ལ་དུས་ནི་འདི་ཡིན་ཏེ། ན་བ་དུས་སོ། ལས་དུས་སོ། ལམ་དུས་སོ། གྲུར་ཞུགས་པ་དུས་དང་། འདུས་པ་ཆེན་པོ་དང་། དགེ་སློང་གི་ཟས་དུས་ཏེ་དེ་ལ་ནི་དུས་ཡིན་ནོ༎ 36

ཡང་དགེ་སློང་གང་དུས་མ་ཡིན་པར་བཅའ་བའམ། བཟའ་བ་འཆའ་འམ་ཟ་ན་ལྟུང་བྱེད་དོ༎ 37

ཡང་དགེ་སློང་གང་། བཅའ་བ་དང་བཟའ་བ་སོག་འཇོག་བྱས་པ་འཆའ་འམ་ཟ་ན་ལྟུང་བྱེད་དོ༎ 38

ཡང་དགེ་སློང་ གང་ མ་བྱིན་ པར་ ཁ་ནས་མིད་ པའི་ ཟས་ཟ་ན་ཆུ་དང་སོ་ཤིང་མ་གཏོགས་ཏེ་ལྟུང་བྱེད་དོ༎ 39

བཅོམ་ ལྡན་ འདས་ ཀྱིས་ དགེ་སློང་ རྣམས་ ཀྱིས་ གསོལ་བ་ གང་དག་ གསུངས་པ་འདི་ལྟ་སྟེ། འོ་མ་དང་། ཞོ་དང་། མར་དང་། ཉ་ཤ་དང་། ཤ་དང་། ཤ་སྐམ་དག་སྟེ། དགེ་སློང་མིན་པར་བདག་ཉིད་ཀྱི་ཕྱིར་ ཟས་ བསོད་ པ་དེ་ལྟ་ བུ་དག་ གཞན་ གྱི་ ཁྱིམ་ དག་ནས་ བླངས་ཏེ། འཆའ་འམ་ཟ་ན་ལྟུང་བྱེད་དོ༎ 40

སྡོམ་ལ།

སྒོག་ཆགས་བཅས་དང་ཉལ་སར་འདུག།
འགྲེང་དང་གཅེར་བུ་དམག་དང་ནི།
ཞག་གཉིས་བཤམ་དཀྲུག་འགྲོ་བ་དང་།
བརྡེག་དང་བཟས་དང་གནས་ངན་ལེན༎

ཡང་དགེ་སློང་གང་ཤེས་བཞིན་དུ་སྤྱོག་ ཆགས་དང་བཅས་པའི་ཚུལ་
སྤྱོད་ན་ལྟུང་བྱེད་དོ༎ 41

ཡང་དགེ་སློང་གང་། ཤེས་བཞིན་དུ་ཞལ་ཏོ་བྱེད་པར་ཞོམ་པའི་
ཁྲིམས་དུ། ཕྱིས་གནོན་བྱེད་དེ་ སྟན་ལ་འདུག་ན་ལྟུང་བྱེད་དོ༎ 42

ཡང་དགེ་སློང་གང་། ཤེས་བཞིན་དུ་ཞལ་ཏོ་བྱེད་པར་ཞོམ་པའི་
ཁྲིམས་དུ་དབེན་པ་སྐབས་ཡོད་པར་འགྲེང་ན་ལྟུང་བྱེད་དོ༎ 43

ཡང་དགེ་སློང་གང་། གཅེར་བུའམ། གཅེར་བུ་མ་ཀུན་དུ་རྒྱུ་
བའམ། ཀུན་དུ་རྒྱུ་མོ་ལ་རང་གི་ལག་ནས། བཅའ་བ་དང་། བཟའ་བ་
བྱིན་ན་ལྟུང་བྱེད་དོ༎ 44

ཡང་དགེ་སློང་གང་། དམག་ཚས་པ་ལ་ལྟར་འགྲོ་ན་ལྟུང་བྱེད་དོ༎45

དགེ་སློང་ དམག་ ཚས་ པ་ ལ་ ལྟ་ བར་ འགྲོ་ བ་ དེ་ ལྟ་ བུའི་ རྐྱེན་ ཞིག་
བྱུང་ན། དགེ་སློང་དེས་དམག་དེའི་ནང་དུ་ཞག་གཉིས་ཚུན་ཆད་གནས་
པར་བྱའོ། དེ་ལས་ལྷག་པར་གནས་ན་ལྟུང་བྱེད་དོ༎ 46

དགེ་སློང་ཞག་གཉིས་དམག་དེའི་ནང་ན་གནས་པའི་ཚེ། ཡང་གལ་
དེ་བ་ཤམས་པ་དཀྲུག་དུ་འགྲོའམ། རྒྱལ་མཚན་གྱི་མཆོག་[2] གམ། དཔུང་
གི་མཆོག་[3] གམ། གཡུལ་བ་ཤམས་པའི་དམག་ལ། ལྟ་བ་ཉམས་སུ་
སྤྱོང་བར་བྱེད་ན་ལྟུང་བྱེད་དོ༎ 47

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[1] ཁྲུས་ཞུགས་པའོ (Mu, folio 195).

[2] ཁྲུ་མཆོག་དང་། རྟ་སྣ་དང་། སེང་གེ་དང་། ཀླུའི་རྒྱལ་མཚན་ནོ། (Mu, folio 213).

[3] གླང་ཆེན། རྟ། ཤིང་རྟ། དཔུང་བུ་རྐང་གི་ཚོགས་སོ། (Mu, folio 213).

ཡང་དགེ་སློང་གང་། ཁྲིམས་འཁྲུགས་ཇམ་པར་གྱུར་ཏེ། ཡིད་མ་རངས་ནས་དགེ་སློང་ལ་བརྡེག་ན་ལྟུང་བྱེད་དོ།། 48

ཡང་དགེ་སློང་གང་། ཁྲིམས་འཁྲུགས་ཇམ་པར་གྱུར་ཏེ། ཡིད་མ་རངས་ནས། དགེ་སློང་ལ་བརྡེག་པར་གཟས་ན་ཐ་ན་ཐལ་མོས་ཀྱང་། རྡུང་ཉེ་ལྟུང་བྱེད་དོ།། 49

ཡང་ དགེ་སློང་ གང་ ཤེས་ བཞིན་དུ་ དགེ་སློང་གི་ གནས་ངན་ལེན་གྱི་ ལྟུང་བ་འཆབ་ན་ལྟུང་བྱེད་དོ།། 50

སྡོམ་ལ།

བདེ་དང་མི་དང་འདུན་པ་དང་།
བསྙེན་པར་མ་རྫོགས་ཆོས་དང་སྨྲ།
དགེ་ཚུལ་ཁ་ཏོག་བསྒྱུར་བ་དང་།
རིན་པོ་ཆེ་དང་ཚ་བའི་དུས།།

ཡང་དགེ་སློང་གང་། ཀླན་ཀ་ཚོལ་ཞིང་ཅི་ནས་ཀྱང་དགེ་སློང་འདི་ལ་ཀླན་ཀ་བཙལ་བར་འགྱུར་རོ་སྙམ་པ་དེ་ཉིད་རྒྱུན་དུ་བྱས་ཏེ། དགེ་སློང་ལ་འདི་སྐད་ཅེས་ཚེ་དང་ལྡན་པ་ཚུར་ཤོག་ཁྱིམ་དུ་འདོང་དང་། ཁྱོད་ལ་བཅའ་ བ་དང་ བཟའ་ བ་བསོད་ པ་ཅི་ ཙམ་འདོད་པ་སྦྱིན་དུ་གཞུག་གོ་ཞེས་སྨྲས་ ནས་དེས་ དེ་ལ་ སྦྱིན་དུ་ མ་བཅུག་ པར་ དེའི་འོག་ཏུ་ འདི་ སྐད་ཅེས། ཚེ་དང་ལྡན་པ་ཁོ་བོ་ལ་ཁྱོད་དང་ལྷན་ཅིག་སྨྲ་བའམ། འདུག་པ་བདེ་བ་མ་ཡིན་གྱི། འདི་ལྟར་ཁོ་བོ་གཅིག་པུ་ཁོ་ན་སྨྲའམ། འདུག་ན་བདེས་ཁྱོད་སོང་ཅིག་ཅེས་ཟེར་ན་ལྟུང་བྱེད་དོ།། 51

ཡང་དགེ་སློང་གང་མི་ན་བར་བདག་ཉིད་ཀྱི་ཕྱིར་མི་ལ་རེག་གམ་རེག་ཏུ་འཇུག་ན་ལྟུང་བྱེད་དོ།། 52

ཡང་དགེ་སློང་གང་། དགེ་འདུན་གྱི་བྱ་བ་ཆོས་དང་ལྡན་པ་ལ། དགེ་སློང་ལ་འདུན་པ་ཕུལ་ནས། དེའི་འོག་ཏུ་ཁྲོས་འཁྲུགས་ཛམ་པར་གྱུར་ཏེ། ཡིད་མ་རངས་ནས་སྤོང་བའི་ཆོས་སུ་བྱེད་ཅིང་། འདི་སྐད་ཅེས་དགེ་སློང་འདུན་པ་ཕྱིར་བྱིན་ཅིག། ཁྱོད་ལ་མི་སྦྱིན་ནོ་ཞེས་ཟེར་ན་ལྟུང་བྱེད་དོ།། 53

ཡང་དགེ་སློང་གང་གང་ཟག་བསྙེན་པར་མ་རྫོགས་པ་དང་། ལྷན་ཅིག་ཞག་གཉིས་ལས་ལྷག་པར་གནས་གཅིག་ཏུ་ཉལ་ན་ལྟུང་བྱེད་དོ།། 54

ཡང་དགེ་སློང་གང་། འདི་སྐད་ཅེས་ཇི་ལྟར་བཅོམ་ལྡན་འདས་ཀྱིས། བར་དུ་གཅོད་པའི་ཆོས་[1]སུ་གསུངས་པ་གང་དག་ཡིན་པ་དེ་དག་བསྟེན་ཀྱང་བར་དུ་གཅོད་པར་མི་འགྱུར་ཏེ། དེ་ལྟར་བཅོམ་ལྡན་འདས་ཀྱིས་ཆོས་བསྟན་པ་བདག་གིས་ཤེས་སོ་ཞེས་ཟེར་ན། དགེ་སློང་དེ་ལ་དགེ་སློང་རྣམས་ཀྱིས། འདི་སྐད་ཅེས་ཚེ་དང་ལྡན་པ་ཁྱོད་ཇི་ལྟར་བཅོམ་ལྡན་འདས་ཀྱིས་བར་དུ་གཅོད་པའི་ཆོས་སུ་གསུངས་པ་གང་དག་ཡིན་པ་དེ་དག་བསྟེན་ཀྱང་། བར་དུ་གཅོད་པར་མི་འགྱུར་ཏེ། དེ་ལྟར་བཅོམ་ལྡན་འདས་ཀྱི་ཆོས་བསྟན་པ་བདག་གིས་ཤེས་སོ་ཞེས་མ་ཟེར་ཅིག བཅོམ་ལྡན་འདས་ལ་སྐུར་བ་མ་འདེབས་ཤིག། བཅོམ་ལྡན་འདས་ལ་སྐུར་པས་ལེགས་པར་མི་འགྱུར་རོ། བཅོམ་ལྡན་འདས་ནི་དེ་སྐད་མི་

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1 ཕམ་ལྷག་སོགས་ལྟུང་བ་རྣམས། (Mu, folio 242).

གསུངས་སོ། ཚེ་དང་ལྡན་པ་བར་དུ་གཅོད་པའི་ཆོས་རྣམས་ནི། བར་དུ་གཅོད་པ་ཉིད་དོ་ཞེས། བཅོམ་ལྡན་འདས་ཀྱིས་རྣམ་གྲངས་དུ་མར་གསུངས་ཏེ། དེ་དག་བསྟེན་ན་བར་དུ་གཅོད་པར་འགྱུར་གྱིས། ཚེ་དང་ལྡན་པ་ཁྱོད་སྡིག་པ་ཅན་གྱི་ལྟ་བའི་རྣམ་པ་འདི་ལྟ་བུ་འདི་ཐོང་ཤིག་ཅེས་བསྒོ་བར་བྱའོ། དགེ་སློང་དེ་ལ་དགེ་སློང་རྣམས་ཀྱིས་དེ་སྐད་བསྒོ་བ་ན། གལ་ཏེ་གཞི་དེ་གཏོང་ན་ལེགས། གལ་ཏེ་མི་གཏོང་ན་གཞི་དེ་གཏོང་བར་བྱ་བའི་ཕྱིར། ལན་གཉིས་ལན་གསུམ་དུ་ཡང་དག་པར་བསྒོ་བར་བྱ། ཡང་དག་བསྟན་པར་བྱའོ། ལན་གཉིས་ལན་གསུམ་དུ་ཡང་དག་པར་བསྒོ། ཡང་དག་པར་བསྟན་པ་ན། གཞི་དེ་གཏོང་ན་དེ་ལྟ་ན་ལེགས། གལ་ཏེ་མི་གཏོང་ན་ལྟུང་བྱེད་དོ།། 55

ཡང་དགེ་སློང་གང་། ཤེས་བཞིན་དུ་དེ་སྐད་ཟེར་བའི་གང་ཟག་ཆོས་བཞིན་དུ་མ་བྱས་པ། སྡིག་པ་ཅན་གྱི་ལྟ་བའི་རྣམ་པ་དེ་མ་སྤངས་པ་དང་། གཏམ་འདྲེ་བར་བྱེད། ཐེབས་པར་སྨྲ་བར་བྱེད། ཀུན་དུ་གནས་པར་བྱེད། ཀུན་དུ་ལོང་སྤྱོད་པར་བྱེད་ཅིང་། དེ་དང་ལྷན་ཅིག་གནས་གཅིག་ཏུ་ཉལ་ནའང་ལྟུང་བྱེད་དོ།། 56

དགེ་ཚུལ་ཞིག་ཀྱང་འདི་སྐད་ཅེས། ཇི་ལྟར་བཅོམ་ལྡན་འདས་ཀྱིས་འདོད་པ་དག་ནི་བར་དུ་གཅོད་པའོ་ཞེས་གསུངས་པ་གང་ཡིན་པ་དེ་དག་བསྟེན་ཀྱང་བར་དུ་གཅོད་པར་མི་འགྱུར་ཏེ། དེ་ལྟར་བཅོཾ་ལྡན་འདས་ཀྱིས་ཆོས་བསྟན་པ། བདག་གིས་ཤེས་སོ་ཞེས་ཟེར་ན། དགེ་ཚུལ་དེ་ལ་དགེ་སློང་རྣམས་ཀྱིས་འདི་སྐད་ཅེས། དགེ་ཚུལ་ཁྱོད་ཇི་ལྟར་བཅོམ་

ལྡན་འདས་ཀྱིས་འདོད་པ་དག་ནི་བར་དུ་གཅོད་པའོ་ཞེས་གསུངས་པ་གང་
ཡིན་པ་དེ་དག་བརྟེན་ཀྱང་། བར་དུ་གཅོད་པར་མི་འགྱུར་ཏེ། དེ་ལྟར་
བཅོམ་ལྡན་འདས་ཀྱིས་ཆོས་བསྟན་པ་བདག་གིས་ཤེས་སོ་ཞེས་དེ་སྐད་
མ་ཟེར་ཅིག། བཅོམ་ལྡན་འདས་ལ་སྐུར་པ་མ་འདེབས་ཤིག། ཁྱོད་
བཅོམ་ལྡན་འདས་ལ་སྐུར་པས་ལེགས་པར་མི་འགྱུར་རོ། བཅོམ་ལྡན་འདས་
ནི་དེ་སྐད་མི་གསུང་ངོ་། ཚེ་དང་ལྡན་པ་དགེ་ཚུལ་འདོད་པ་དག་ནི་བར་
དུ་གཅོད་པ་ཉིད་དོ་ཞེས། བཅོམ་ལྡན་འདས་ཀྱིས་རྣམ་གྲངས་དུ་མར་
གསུངས་ཏེ། དེ་དག་བརྟེན་ན་བར་དུ་གཅོད་པར་འགྱུར་གྱིས། དགེ་ཚུལ་
ཁྱོད་ལྟ་བའི་རྣམ་པ་འདི་ལྟ་བུ་འདི་ཐོང་ཤིག་ཅེས་བསྒོ་བར་བྱའོ། དགེ་
ཚུལ་དེ་ལ་དགེ་སློང་རྣམས་ཀྱིས་དེ་སྐད་བསྒོ་བ་ན། གལ་ཏེ་གཞི་དེ་གཏོང་
ན་དེ་ལྟ་ན་ལེགས། གལ་ཏེ་མི་གཏོང་ན་གཞི་དེ་གཏོང་བར་བྱ་བའི་ཕྱིར།
ལན་གཉིས་ལན་གསུམ་དུ་ཡང་དག་པར་བསྒོ་བར་བྱ། ཡང་དག་པར་
བསྟན་པར་བྱའོ། ལན་གཉིས་ལན་གསུམ་དུ་ཡང་དག་པར་བསྒོ། ཡང་
དག་པར་བསྟན་པ་ན། གཞི་དེ་གཏོང་ན་དེ་ལྟ་ན་ལེགས། གལ་ཏེ་མི་གཏོང་ན།
དགེ་ཚུལ་དེ་ལ་དགེ་སློང་རྣམས་ཀྱིས་དེང་ཕྱིན་ཆད་དགེ་ཚུལ་ཁྱོད། བཅོམ་
ལྡན་འདས་དེ་བཞིན་གཤེགས་པ་དགྲ་བཅོམ་པ་ཡང་དག་པར་རྫོགས་པའི་
སངས་རྒྱས་དེ་ལ་སྟོན་པའོ། ཞེས་མ་ཟེར་ཅིག། ཚངས་པ་མཚུངས་
པར་སྤྱོད་པ་མཁས་པ་བླ་མའི་གནས་ལྟ་བུ་གང་ཡང་རུང་བའི་ཕྱི་བཞིན་དུ་
ཡང་མ་འགྲོ་ཤིག། དགེ་སློང་རྣམས་དང་། དགེ་ཚུལ་ལྷན་ཅིག་ཉུ་
གཉིས་ཚུན་ཆད་གནས་གཅིག་ཏུ་ཉལ་དུ་དབང་བ་གང་ཡིན་དེ་དེང་ཕྱིན་ཆད་

ཁྲོད་ལ་མེད་དེ། གདེ་སྨུག་ཅན་ཁྲོད་བསྐྱིལ་གྱིས་གཞན་དུ་སོང་ཤིག་ཅེས་བསྒོ་བར་བྱའོ། ཡང་དགེ་སློང་གང་ཤེས་བཞིན་དུ། དེ་ལྟར་བསྐྱིལ་བའི་དགེ་ཚུལ། ཉེ་བར་འཇོག་པར་བྱེད་དམ། ཉེ་བར་སྟོན་པར་བྱེད་དམ། དེ་དང་ལྷན་ཅིག་གནས་ཅིག་ཏུ་ཉལ་ན་ལྟུང་བྱེད་དོ།། 57

དགེ་སློང་གིས་གོས་གསར་པ་ཞིག་རྙེད་ན། ཁ་བསྒྱུར་བ་གསུམ་པོ་སྔོན་པོའམ། དམར་པོའམ། ངུར་སྨྲིག་ལས་གང་ཡང་རུང་བས་ཁ་དོག་བསྒྱུར་བར་བྱའོ། གལ་ཏེ་དགེ་སློང་གིས་གོས་གསར་པ་ཁ་བསྒྱུར་བ་གསུམ་པོ། སྔོན་པོའམ། དམར་པོའམ། ངུར་སྨྲིག་ལས་གང་ཡང་རུང་བར་ཁ་མ་བསྒྱུར་བར་སྤྱོད་ན་ལྟུང་བྱེད་དོ།། 58

ཡང་དགེ་སློང་གང་། རིན་པོ་ཆེའམ། རིན་པོ་ཆེར་སྨོས་པ། རང་གི་ལག་གིས་ལེན་དམ། ལེན་དུ་འཇུག་ན་ཀུན་དགའ་ར་བར་གཏོགས་པ་ན་འདུག་པའམ། གནས་ཁང་དུ་གཏོགས་པ་ན་འདུག་པ་མ་གཏོགས་ལྟུང་བྱེད་དོ།།

དགེ་སློང་གིས་ཀུན་དགའ་ར་བར་གཏོགས་པའམ། གནས་ཁང་དུ་གཏོགས་པ་ན། རིན་པོ་ཆེའམ། རིན་པོ་ཆེར་སྨོས་པ་འདུག་པ་ལ་འདི་སུའི་ཡིན་པ་དེ་ལེན་པར་འགྱུར་གྲང་ སྙམ་པ་དེ་ལྟ་བུའི་སེམས་ཀྱིས་བླང་བར་བྱ་སྟེ། དེ་ལ་དེ་ནི་ཚིག་ཡིན་ནོ།། 59

བཅོམ་ལྡན་འདས་ཀྱིས་ཟླ་བ་ཕྱེད་ཕྱེད་ཅིང་། ཁྲུས་བྱ་བར་གསུངས་པ་དེ་ལས་འདས་པར་བྱེད་ན་དུས་མ་གཏོགས་ཏེ་ལྟུང་བྱེད་དོ །།

དེ་ལ་དུས་ནི་འདི་ཡིན་ནོ། སོ་ག་རྣམས་ཀྱི་ཟླ་བ་ལྷག་མ་ཕྱེད་དང་

གཉིས་དང་། དབྱར་རྣམས་ཀྱི་དང་པོ་དང་། ཟླ་བ་ཕྱེད་དང་གསུམ་པོ་འདི་དག་ནི་ཚ་བའི་དུས་སོ། ལྷག་མ་ནི་ནབ་དུས་སོ། ལས་དུས་སོ། ཆུང་དུས་སོ། ཚར་དུས་སོ། ཐྲི་ཚར་དུས་དེ། དེ་ལ་དེ་ནི་དུས་ཡིན་ནོ།། 60

སྡོམ་ལ།

དུད་འགྲོ་འགྱོད་པ་སོར་མོ་དང་།
རྩེ་དང་ལྷན་ཅིག་དངང་བྱེད་དང་།
སྦྲིད་དང་ཐེང་མེད་གཞི་མེད་དང་།
སྐྱེས་པ་མེད་པར་ལམ་འགྲོ་བའོ།།

ཡང་ དགེ་སློང་ གང་ བསམས་ བཞིན་ དུ་དུད་ འགྲོའི་སྐྱེ་ གནས་ སུ་གདོགས་པའི་སྲོག་ཆགས་གསོད་ན་ལྟུང་བྱེད་དོ།། 61

དགེ་སློང་གང་། བསམས་བཞིན་དུ་ཅི་ནས་ཀྱང་། དགེ་སློང་འདི་ཡུད་ ཙམ་ ཞིག་ ཀྱང་ བདེ་ བ་ལ་ མི་རེག་ པར་བྱུའོ་སྙམ་ པ་དེ་ཉིད་ཀྱིས་དུ་བྱས་དེ། དགེ་སློང་ལ་འགྱོད་པ་སྐྱེད་ན་ལྟུང་བྱེད་དོ།། 62

སོར་མོས་ག་ག་ཚིལ་བྱེད་ན་ལྟུང་བྱེད་དོ།། 63

ཆུ་ལ་རྩེ་ན་ལྟུང་བྱེད་དོ།། 64

ཡང་དགེ་སློང་ གང་བུད་མེད་ཀྱི་ ཡུལ་དང་ ལྷན་ཅིག་གནས་གཅིག་དུ་ཉལ་ན་ལྟུང་བྱེད་དོ།། 65

ཡང་དགེ་སློང་གང་དགེ་སློང་ལ་སྡངས་པར་བྱེད་དུ་འཇུག་ན། ཐན་བཞད་གད་དུ་བྱ་བར་བསམས་ཀྱང་རྡུང་སྟེ་ལྟུང་བྱེད་དོ།། 66

ཡང་དགེ་སློང་གང་དགེ་སློང་ངམ། དགེ་སློང་མའམ། དགེ་སློབ་མའམ། དགེ་ཚུལ་འམ། དགེ་ཚུལ་མའི་ལྟུང་བཟེད་དམ། གོས་སམ། ན་བཟའམ། ཕོར་བུའམ། སྐ་རགས་སམ། དགེ་སྦྱོང་གི་འཚོ་བའི་ཡོ་བྱད་གང་ཡང་རུང་བ་སྦེད་དམ། སྦེད་དུ་འཇུག་ན། དེ་འདྲ་བའི་རྒྱུན་མ་གཏོགས་ཏེ། ལྟུང་བྱེད་དོ༎ 67

ཡང་དགེ་སློང་གང་། དགེ་སློང་ལ་གོས་བྱིན་ནས་དེའི་འོག་ཏུ་རང་མེད་པར་བྱེད་ན་ལྟུང་བྱེད་དོ༎ 68

ཡང་དགེ་སློང་གང་། ཁྲོས་ཤིང་ཞེ་སྡང་བར་གྱུར་ནས། དགེ་སློང་དག་པ་ལྟུང་བ་མེད་པ་ལ། གཞི་མེད་པར་དགེ་འདུན་ལྷག་མའི་ཆོས་ཀྱིས་སྐུར་ན་ལྟུང་བྱེད་དོ༎ 69

ཡང་དགེ་སློང་གང་། སྐྱེས་པ་མེད་པར། བུད་མེད་དང་ལྷན་ཅིག་འགྲོན་ལམ་དུ་འགྲོ་ན། ཐ་ན་གྲོང་བར་དུ་ཡང་རུང་སྟེ། ལྟུང་བྱེད་དོ༎ 70

སྡོམ་ལ།

རྐུ་དང་ཉི་ཤུ་མ་ལོན་དང་།
ཀོ་དང་འགྲོན་དང་བསླབ་པ་དང་།
འཐབ་དང་མི་སྨྲ་འགྲོ་བ་དང་།
མི་གུས་ཆང་འཐུང་དུས་མིན་པའོ༎

ཡང་དགེ་སློང་གང་། ཇོན་འཐུན་པ། རྐུན་མ་དང་ལྷན་ཅིག་འགྲོན་ལམ་དུ་འགྲོ་ན་ཐ་ན་གྲོང་བར་དུ་ཡང་རུང་སྟེ། ལྟུང་བྱེད་དོ༎ 71

ཡང་དགེ་སློང་གང་། གང་ཟག་ཉི་ཤུ་མ་ལོན་པ། དགེ་སློང་གི་དངོས་པོར་བསྙེན་པར་རྫོགས་པར་བྱེད་ན་ལྟུང་བྱེད་དོ།།

གང་ཟག་དེ་ཡང་བསྙེན་པར་རྫོགས་པར་མི་འགྱུར་ལ། དགེ་སློང་དག་ཀྱང་སྨད་པར་འགྱུར་ཏེ། དེ་ལ་དེ་ནི་ཚིག་ཡིན་ནོ།། 72

ཡང་དགེ་སློང་གང་རང་གི་ལག་གིས་ས་རྐོའམ། རྐོར་འཇུག་ན་ལྟུང་བྱེད་དོ།། 73

དགེ་སློང་གིས་ཟླ་བ་བཞིར་འགྲོན་དུ་བོས་པ་དང་། བདག་གིར་བྱའོ། དེ་ལས་ལྷག་པར་བདག་གིར་བྱེད་ན་ལྟུང་བྱེད་དོ།།

སོ་སོར་འགྲོན་དུ་བོས་པ་དང་ཡང་དང་ཡང་དུ་འགྲོན་དུ་བོས་པ་དང་། དུས་ཀྱིས་འགྲོན་དུ་བོས་པ་དང་། རྟག་ཏུ་འགྲོན་དུ་བོས་པ་ནི་མ་གཏོགས་ཏེ། དེ་ལ་ནི་དུས་ཡིན་ནོ།། 74

ཡང་དགེ་སློང་གང་། དགེ་སློང་རྣམས་ཀྱིས་ཚེ་དང་ལྡན་པ་ཁྱོད་ཀྱིས་བསླབ་པ་འདི་ལ་བསླབ་པར་བྱའོ་ཞེས་བསྒྲོ་བ་ན། དེ་དག་ལ་འདི་སྐད་ཅེས་བདག་དགེ་སློང་མདོ་སྡེ་འཛིན་པ་དང་། འདུལ་བ་འཛིན་པ་དང་། མ་མོ་འཛིན་པ་རྣམས་ལ་འདྲི་བའི་བར་དུ་བྱིས་པ། རྨོངས་པ་མི་གསལ་བ། མི་མཁས་པ། ཁྱོད་ཀྱི་ཚིག་གིས་བསླབ་པ་འདི་ལ་མི་སློབ་བོ་ཞེས་ཟེར་ན་ལྟུང་བྱེད་དོ།།

དགེ་སློང་ཀུན་ཤེས་པར་འདོད་པས་ཀྱང་བསླབ་པ་དེ་ལ་བསླབ་པར་བྱའོ། དགེ་སློང་མདོ་སྡེ་འཛིན་པ་དང་། འདུལ་བ་འཛིན་པ་དང་། མ་མོ་འཛིན་པ་རྣམས་ལ་ཡང་དྲི་བར་བྱ་སྟེ། དེ་ལ་དེ་ནི་ཚིག་ཡིན་ནོ།། 75

ཡང་དགེ་སློང་གང་། དགེ་སློང་རྣམས་འཐབ་པར་འགྱུར། འཚང་འདྲུ་བར་འགྱུར། མི་མཐུན་པར་འགྱུར། རྩོད་པར་གྱུར་ཅིང་འཁོད་པ་ལ། དགེ་སློང་འདི་དག་ཇི་སྐད་ཟེར་བ་དེ་བདག་གིས་མཉན་ཏེ། དེ་ལྟ་རེ་ལྟར་རྗེས་སུ་ཐ་སྙད་གདགས་པར་བྱའོ། སྙམ་པ་དེ་ཉིད་ཀྱིན་དུ་བྱས་ཏེ། ཅང་མི་སྨྲ་བར་ཉན་ནས་འདུག་ན་ལྟུང་བྱེད་དོ༎ 76

ཡང་དགེ་སློང་གང་། དགེ་འདུན་གྱི་ཆོས་དང་ལྡན་པར་གཏམ་རྣམ་པར་གཏན་ལ་འབེབས་པ་བྱུང་བ་ན། ཅང་མི་སྨྲ་བར་སྟན་ལས་ལངས་ཏེ་འགྲོ་ཞིང་། དགེ་སློང་འདུག་པ་ལ་མི་སྨྲ་ན་དེ་འདྲ་བའི་རྐྱེན་མ་གཏོགས་ཏེ་ལྟུང་བྱེད་དོ༎ 77

གུས་པར་མི་བྱེད་ན་ལྟུང་བྱེད་དོ༎ 78

འབྲུའི་ཆང་དང་། བཅོས་པའི་ཆང་མྱོས་པར་འགྱུར་བ། འཐུང་ན་ལྟུང་བྱེད་དོ༎ 79

ཡང་དགེ་སློང་གང་། དུས་མ་ཡིན་པར་གྲོང་དུ་འཇུག་ཅིང་། དགེ་སློང་འདུག་པ་ལ་ནི་མི་སྨྲ་ན་དེ་འདྲ་བའི་རྐྱེན་མ་གཏོགས་ཏེ་ལྟུང་བྱེད་དོ༎ 80

སྡོམ་ལ།

ཟས་བཅས་སྐྱུ་རིང་ད་གནོད་དང་།
ཁབ་རལ་དང་ནི་ཁྲི་ཀང་དང་།
བདལ་དང་གདིང་དང་གཡན་པ་དང་།
རས་ཆེན་བདེ་གཤེགས་ཆོས་གོས་སོ༎

ཡང་དགེ་སློང་གང་། ཟས་དང་བཅས་པའི་ཁྱིམ་དུ་འགྲོན་དུ་བོས་
ནས། སྔ་དྲོ་དང་། ཕྱི་དྲོ་ཁྱིམ་དག་དུ་རྒྱུ་ཞིང་། ཁྱིམ་པ་འདུག་པ་ལ་
མི་སྒྲོ་ན། དེ་འདྲ་བའི་རྒྱུན་མ་གཏོགས་ཏེ་ལྟུང་བྱེད་དོ།། 81

ཡང་དགེ་སློང་གང་། ནམ་མ་ལངས་སྐྱ་རེངས་མ་ཤར་བར། རིན་པོ་
ཆེ་དག་གམ། རིན་པོ་ཆེར་སྨོས་པ་དག་མ་བསྡུས་པར། རྒྱལ་པོ་རྒྱལ་
རིགས་སྤྱི་བོར་དབང་བསྐུར་བའི་སྒོ་གཏན་ནས། སྒོ་གཏན་གྱི་ཉེ་འཁོར་
ལས་འདས་ན། དེ་འདྲ་བའི་རྒྱུན་མ་གཏོགས་ཏེ་ལྟུང་བྱེད་དོ།། 82

ཡང་དགེ་སློང་གང་། ཟླ་བ་ཕྱེད་ཕྱེད་ཅིང་། སོ་སོར་ཐར་པའི་
མདོ་གདོན་པའི་ཚེ། འདི་སྐད་ཅེས་ཚེ་དང་ལྡན་པ་དག་འདི་ལྟར་ཆོས་
འདི་ཡང་མདོ་འི་ནང་དུ་གཏོགས། མདོ་འི་ནང་དུ་འདུས་པར་བདག་
གིས་ད་གདོད་ཤེས་སོ་ཞེས་ཟེར་ལ། དེ་ལ་གལ་ཏེ་དགེ་སློང་རྣམས་ཀྱིས་
ཀྱང་། ཚེ་དང་ལྡན་པ་འདི་གསོ་སྦྱོང་གི་ལས་གཉིས་སམ། གསུམ་གྱི་ཚེ་
འདུག་པར་ཤེས་ཤིང་། ལན་མང་དུ་ལྟ་ཅི་སྨོས་ན། ཚེ་དང་ལྡན་པ་
དེ་མི་ཤེས་པར་མི་འགྲོ་བས་ དེ་ལྟུང་བ་གང་བྱུང་བ་ དེ་ཆོས་བཞིན་དུ་བྱེད་
དུ་གཞུག་སྟེང་དུ། ཟླ་བ་ཕྱེད་ཕྱེད་ཅིང་། སོ་སོར་ཐར་པའི་མདོ་འདོན་
པའི་ཚེ། གུས་པར་བྱས་ཏེ་ཆོས་ཉན་པར་མི་བྱེད། ཟླ་མར་བྱས་དེ་མི་
བྱེད། རྩ་ཤིག་ལྟར་བྱུང་དེ་མི་བྱེད། ཡིད་ལ་བྱས་དེ་མི་བྱེད། སེམས་
རྩེ་གཅིག་ཏུ་མི་བྱེད། རྣ་བླགས་དེ་མི་བྱེད། སེམས་ཐམས་ཅད་ཀྱིས་
བསམས་དེ་ཆོས་ཉན་པར་མི་བྱེད་པས། ཚེ་དང་ལྡན་པ་ཁྱོད་ཀྱིས་མ་
རྙེད་དོ། རྙེད་པ་མ་ཡིན་ཞིང་། ཉེས་པ་རྙེད་དོ། ལེགས་པ་རྙེད་པ་མ་

ཡིན་ནོ། ཞེས་འགྲོད་པར་བྱའོ། ཆོ་དང་ལྡན་པ་དེ་ལ་འགྲོད་པར་བྱ་བ་ནི་དེ་ཡིན་ཏེ་ལྟུང་བྱེད་དོ།། 83

ཡང་དགེ་སློང་གང་། བ་སོའམ། རུས་པའམ། རྭའི་ཁབ་རལ་བྱེད་དུ་འཇུག་ན། བཅག་ནས་ལྟུང་བྱེད་དོ།། 84

ཡང་དགེ་སློང་གིས་དགེ་འདུན་གྱི་ཁྲིའམ། ཁྲིའུ་བྱེད་དུ་འཇུག་ན། རྐ་བ་ བུ་ གར་ གཞུག་ པ་མ་གཏོགས་ པར་ བདེ་བར་ གཤེགས་ པའི་སོར་བརྒྱད་ཀྱི་ཚད་དུ་བྱེད་དུ་གཞུག་པར་བྱའོ། དེ་ལས་ལྷག་པར་བྱེད་དུ་འཇུག་ན། བཅད་ནས་ལྟུང་བྱེད་དོ།། 85

ཡང་དགེ་སློང་གང་། དགེ་འདུན་གྱི་ཁྲིའམ། ཁྲིའུ་ལ་ཤིང་བལ་བདལ་ལམ་བདལ་དུ་འཇུག་ན་བསྣུས་ནས་ལྟུང་བྱེད་དོ།། 86

དགེ་སློང་གིས་ གདིང་ བ་བྱེད་དུ་འཇུག་ན་ ཚད་བཞིན་དུ་བྱེད་དུ་ཆུག་ཅིག། དེ་ལ་གདིང་བའི་ཚད་ནི་འདི་ཡིན་ཏེ། སྲིད་དུ་བདེ་བར་གཤེགས་པའི་མཐོ་འི་མཐོ་ དོ་ ཞེང་དུ་ཕྱེད་དང་དོ། སྲིད་དུ་མཐོ་གང་གིས་སྲིངས་ཤིག། དེ་ལས་ལྷག་པར་བྱེད་དུ་འཇུག་ན། བཅད་ནས་ལྟུང་བྱེད་དོ།། 87

ཡང་དགེ་སློང་གིས་གཡན་པ་དགབ་པ་བྱེད་དུ་འཇུག་ན། ཚད་བཞིན་དུ་བྱེད་དུ་ཆུག་ཤིག། དེ་ལ་གཡན་པ་དགབ་པའི་ཚད་ནི་འདི་ཡིན་ཏེ། སྲིད་དུ་བདེ་བར་གཤེགས་པའི་མཐོ་འི་མཐོ་བཞི། ཞེང་དུ་མཐོ་དོ། དེ་ལས་ལྷག་པར་བྱེད་དུ་འཇུག་ན་བཅད་ནས་ལྟུང་བྱེད་དོ།། 88

དགེ་སློང་གིས་དབྱར་གྱི་རས་ཆེན་བྱེད་དུ་འཇུག་ན། ཚད་བཞིན་དུ་བྱེད་དུ་ཆུག་ཤིག། དེ་ལ་དབྱར་གྱི་གོས་རས་ཆེན་གྱི་ཚད་ནི་འདི་ཡིན་ཏེ།

སྲིད་དུ་བདེ་བར་གཤེགས་པའི་མཐོའི་མཐོ་དྲུག། ཞེང་དུ་ཕྱེད་དང་གསུམ་མོ། དེ་ལས་ལྷག་པར་བྱེད་དུ་འཇུག་ན། བཅད་ནས་ལྟུང་བྱེད་དོ།། 89

ཡང་དགེ་སློང་གང་། བདེ་བར་གཤེགས་པའི་ཆོས་གོས་ཀྱི་ཚད་ནི་ཆོས་གོས་བྱེད་དུ་འཇུག་གམ། བདེ་བར་གཤེགས་པའི་ཆོས་གོས་ལས་ལྷག་པར་བྱེད་དུ་འཇུག་ན་ལྟུང་བྱེད་དོ།།

དེ་ལ་བདེ་བར་གཤེགས་པའི་ཆོས་གོས་ཀྱི་ཚད་ནི་འདི་ཡིན་ཏེ། སྲིད་དུ་བདེ་བར་གཤེགས་པའི་མཐོའི་མཐོ་བཅུ་ཞེང་དུ་མཐོ་དྲུག་སྟེ། དེ་ལ་འདི་ནི་བདེ་བར་གཤེགས་པའི་ཆོས་གོས་ཀྱི་ཚད་དོ།། 90

ཚེ་དང་ལྡན་པ་དག་བདག་གིས་ལྟུང་བྱེད་ཀྱི་ཆོས་དགུ་བཅུ་པོ་དག་བཏོན་ཟིན་ཏོ། དེ་ལ་བདག་གིས་ཚེ་དང་ལྡན་པ་དག་ལ། ཅི་འདི་ལ་ཁྱེད་ཡོངས་སུ་དག་གམ་ཞེས་དྲིའོ། ཅི་འདི་ལ་ཁྱེད་ཡོངས་སུ་དག་གམ་ཞེས་ལན་གཉིས་ལན་གསུམ་དུ་དྲིའོ། འདི་ལ་ཚེ་དང་ལྡན་པ་དག་ཡོངས་སུ་དག་ན་འདི་ལྟར་ཅང་མི་སྨྲ་བས་དེ་དེ་བཞིན་དུ་འཛིན་ཏོ།།

སོ་སོར་བཤགས་པར་བྱ་བའི་ཆོས་བཞི།

སྡོམ་ལ།

གྲོང་དང་ཁྱིམ་གཞན་ཉིད་དང་ནི།
སློབ་པ་རྣམས་དང་དགོན་པ་ནི།
སངས་རྒྱས་ཕན་པ་གསུངས་བ་ཡིས།
སོ་སོར་བཤགས་པར་བྱ་བ་གསུངས།།

ཚེ་དང་ལྡན་པ་སོ་སོར་བཤགས་པར་བྱ་བའི་ཆོས་བཞི་པོ་འདི་དག་ནི། ཟླ་བ་ཕྱེད་ཕྱེད་ཅིང་སོ་སོར་ཐར་པའི་མདོ་འདོན་པ་ལས་འབྱུང་ངོ་།།

ཡང་དགེ་སློང་གང་། དགེ་སློང་མ་ཉེ་དུ་མ་ཡིན་པ་ལམ་པོ་ཆེ་ན་འདུག་པ། བསོད་སྙོམས་ཀྱི་ཕྱིར་གྲོང་དུ་འགྲོ་བ་ལས་བཅའ་བ་དང་། བཟའ་བ་རང་གི་ལག་གིས་བསླངས་ཏེ་འཆའ་འམ་ཟ་ན། དགེ་སློང་དེས་ཕྱི་རོལ་ཀུན་དགའ་ར་བར་སོང་སྟེ། དགེ་སློང་ལ་ཚེ་དང་ལྡན་དག་བདག་ལ་སྨད་པའི་གནས་མི་རིགས་པ་སོ་སོར་བཤགས་པར་བྱ་བ་བྱུང་གིས་ཆོས་དེ་སོ་སོར་འཆགས་སོ་ཞེས། སོ་སོར་བཤགས་པར་བྱ་བ་སྟེ། ཆོས་འདི་ནི་སོ་སོར་བཤགས་པར་བྱ་བའོ།། 1

དགེ་སློང་རབ་ཏུ་མང་པོ་ཁྱིམ་རྣམས་སུ་འགྲོན་དུ་བོས་ནས་ཟན་ཟ་བའི་ཚེ་ན། གལ་ཏེ་དགེ་སློང་མ་ཞིག་འདི་ལ་ནི་བཅའ་བ་བྱིན་ཅིག། འདི་ལ་འབྲས་ཅན་བྱིན་ཅིག། འདི་ལ་ནི་སྲན་ཚོད་བྱིན་ཅིག། འདི་ལ་ནི་ཡང་བྱིན་ཅིག་ཅེས་སྒྲོ་ཞིང་འདུག་ན། དགེ་སློང་མ་དེ་ལ་དགེ་སློང་རྣམས་ཀྱིས་འདི་སྐད་ཅེས་སྲིང་མོ་ཁྱོད་དགེ་སློང་རྣམས་ཟན་ཟ་བའི་བར་དུ་རེ་ཞིག་སྡོད་ཅིག་ཅེས་བསྒྲོ་བར་བྱའོ། གལ་ཏེ་དགེ་སློང་གཅིག་གིས་ཀྱང་དགེ་སློང་མ་དེ་ལ་དེ་སྐད་སྨྲ་བ་སྤྲོབས་ན། དགེ་སློང་དེ་དག་ཐམས་ཅད་ཀྱིས་ཕྱི་རོལ་ཀུན་དགའ་ར་བར་དོང་སྟེ། དགེ་སློང་རྣམས་ལ་ཚེ་དང་ལྡན་པ་དག་བདག་ཅག་ལ་སྨད་པའི་གནས་མི་རིགས་པ། སོ་སོར་བཤགས་པར་བྱ་བ་བྱུང་གིས། ཆོས་དེ་སོ་སོར་བཤགས་སོ་ཞེས། སོ་སོར་བཤགས་པར་བྱ་སྟེ། ཆོས་འདི་ཡང་སོ་སོར་བཤགས་པར་བྱའོ།། 2

སློབ་པ་དག་གི་ཁྲིམས་གང་དགེ་འདུན་གྱི་བསླབ་པའི་སྡོམ་པས་བསྡམས་པར་གྱུར་ལ། ཡང་དགེ་སློང་གང་། སློབ་པ་དག་གིས་ཁྲིམས་གང་དགེ་འདུན་གྱི་བསླབ་པའི་སྡོམ་པས་བསྡམས་པ་དེ་ལྟ་བུ་དག་ཏུ་སྔར་འགྲོན་དུ་མ་བོས་པར་སོང་སྟེ། རང་གི་ལག་གིས་བཅའ་བ་དང་བཟའ་བ་བླངས་ནས་འཆལའམ་ཟ་ན། དགེ་སློང་དེས་ཕྱི་རོལ་ཀུན་དགའ་ར་བར་སོང་སྟེ། དགེ་སློང་རྣམས་ལ་ཚེ་དང་ལྡན་པ་དག་བདག་ལ་སྨད་པའི་གནས་མི་རིགས་པ། སོ་སོར་བཤགས་པར་བྱ་བ་བྱུང་གིས། ཆོས་དེ་སོ་སོར་བཤགསོ་ཞེས། སོ་སོར་བཤགས་པར་བྱ་སྟེ། ཆོས་འདི་ཡང་སོ་སོར་བཤགས་པར་བྱའོ།། 3

དགེ་འདུན་གྱི་[1] གནས་མལ་དགོན་པ་གང་དག་དོགས་པ་དང་བཅས་པར་གྲགས་པ། འཇིགས་པ་དང་བཅས་པར་གྲགས་པ། འཇིགས་པ་ཐ་དད་པས་འཇིགས་སུ་རུང་བ་དང་བཅས་པར་གྲགས་པར་གྱུར་ལ། ཡང་དགེ་སློང་གང་དགེ་འདུན་གྱི་གནས་མལ་དགོན་པ། གང་དག་དོགས་པ་དང་བཅས་པ་གྲགས་པ། འཇིགས་པ་དང་བཅས་པར་གྲགས་པ། འཇིགས་པ་ཐ་དད་པ་འཇིགས་སུ་རུང་བ་དང་བཅས་པར་གྲགས་པ། དེ་ལྟ་བུ་དག་ཏུ་སྔར་མ་བྱུང་བར་[2] ཀུན་དགའ་ར་བར་[3] ཕྱི་རོལ་དུ་བཅའ་བ་དང་། བཟའ་བ་བླངས་ཏེ་འཆའ་འམ་ཟ་ན། དགེ་སློང་དེས་ཕྱི་རོལ

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1 Orig. གྱིས། in commentaries གྱི།

2 ནགས་མལ་བས་སྔར་མ་མལ་བར་རོ (Tshu, folio 62).

3 In commentaries བའི།

ཀུན་དགའ་ར་བར་སོང་སྟེ། དགེ་སློང་རྣམས་ལ་ཚེ་དང་ལྡན་པ་དག་བདག་ལ་སྨད་པའི་གནས་མི་རིགས་པ་སོ་སོར་བཤགས་པར་བྱ་བ་བྱུང་གིས། ཆོས་དེ་སོ་སོར་བཤགས་སོ་ཞེས་སོ་སོར་བཤགས་པར་བྱ་སྟེ། ཆོས་འདི་ཡང་སོ་སོར་བཤགས་པར་བྱའོ།། 4

ཚེ་དང་ལྡན་པ་དག་བདག་གིས་སོ་སོར་བཤགས་པར་བྱ་བའི་ཆོས་བཞི་པོ་དག་བཏོན་ཟིན་ཏོ། དེ་ལ་བདག་གིས་ཚེ་དང་ལྡན་པ་དག་ལ་ཅི་འདི་ལ་ཁྱེད་ཡོངས་སུ་དག་གམ་ཞེས་དྲིའོ། ཅི་འདི་ལ་ཁྱེད་ཡོངས་སུ་དག་གམ་ཞེས་ལན་གཉིས་ལན་གསུམ་གྱི་བར་དུ་དྲིའོ། འདི་ལ་ཚེ་དང་ལྡན་པ་དག་ཡོངས་སུ་དག་ན་འདི་ལྟར་ཅང་མི་སྨྲ་བས་དེ་དེ་བཞིན་དུ་འཛིན་ཏོ།།

བསླབ་པའི་ཆོས་མང་པོ།

སྡོམ་ལ།

ཤམ་ཐབས་ལ་ནི་རྣམས་བདུན་དང་།
སྟོད་གཡོགས་ལ་ཡང་རྣམ་གསུམ་དང་།
ཤིན་ཏུ་བསྡམས་ལ་སོགས་པ་ལྔ།
མགོ་གཡོགས་ལ་སོགས་ཉིཾ་པ་ལྔ།
འཆོང་བ་ལ་སོགས་རྣམ་ལྔ་དང་།
ལུས་ལ་སོགས་པ་རྣམ་པ་ལྔ།
འདུག་པར་བྱ་བ་དགུ་དག་དང་།
བྱིན་ལེན་བྱ་བ་བརྒྱད་རྣམས་སོ།།

ཚེ་དང་ལྡན་པ་དག་བསླབ་པའི་ཆོས་མང་པོ་འདི་དག་ནི་ཟླ་བ་ཕྱེད་
ཕྱེད་ཅིང་སོ་སོར་ཐར་པའི་མདོ་འདོན་པ་ལས་འབྱུང་ངོ་།།

ཤམ་ཐབས་ཟླུམ་པོར་བགོ་བར་བསླབ་པར་བྱ། 1 ཤམ་ཐབས་
ཧ་ཅང་རྩིངས་པ་མ་ཡིན་པ་དང་། 2 ཧ་ཅང་འཛོལ་བ་མ་ཡིན་པ་དང་། 3
གླང་པོ་ཆེའི་སྣ་ལྟར་མ་ཡིན་པ་དང་། 4 ཏ་ལའི་ལོ་མ་ལྟར་མ་ཡིན་པ་
དང་། 5 འབྲུའི་ཕུར་མ་ལྟར་མ་ཡིན་པ་དང་། 6 སྦྲུལ་མགོའི་གདེངས་
ཀ་ལྟར་མ་ཡིན་པར་བགོ་བར་བསླབ་པར་བྱའོ། 7

ཆོས་གོས་ཟླུམ་པོར་བགོ་བར་བསླབ་པར་བྱ། 8 ཆོས་གོས་ཧ་ཅང་
རྩིངས་པ་མ་ཡིན་པ་དང་། 9 ཧ་ཅང་འཛོལ་བ་མ་ཡིན་པར་བགོ་བར་
བསླབ་པར་བྱའོ།། 10

ཤིན་ཏུ་བསྡམས་པ་དང་། 11 ལེགས་པར་བསྒྲིམས་པ་དང་། 12
སྒྲ་སྐྱུངས་པ་དང་། 13 མིག་གཡེང་བར་མི་བྱ་བ་དང་། 14 གཉའ་ཤིང་
གང་ཙམ་དུ་བལྟ་ཞིང་ཁྱིམ་གཞན་དག་ཏུ་འགྲོ་བར་བསླབ་པར་བྱའོ།། 15

མགོ་མི་གཡོགས་པ་དང་། 16 མི་བརྫེ་བ་དང་། 17 མི་གཟར་
བ་དང་། 18 གཉའ་གོང་དུ་མི་བསྣོལ་བ་དང་། 19 ལྟག་པར་མི་བསྣོལ་
བར་ཁྱིམ་གཞན་དུ་འགྲོ་བར་བསླབ་པར་བྱའོ།། 20

མི་མཆོང་བ་དང་། 21 མི་བརྐྱང་བ་དང་། 22 ཙོག་པུར་མ་ཡིན་
པ་དང་། 23 ཟང་བས་མ་ཡིན་པ་དང་། 24 དཀུར་མི་བརྟེན་པར་ཁྱིམ་
གཞན་དུ་འགྲོ་བར་བསླབ་པར་བྱའོ།། 25

ལུས་མི་བསྒྱུར་བ་དང་། 26 ལག་པ་མི་དཀྱོག་པ་དང་། 27 མགོ་མི

བསྒྱུར་བ་དང་། 28 ཕྲག་པ་མི་སྤྲད་པ་དང་། 29 ལགས་ནི་སྤྲོལ་བར་ཁྱིམ་གཞན་དུ་འགྲོ་བར་བསླབ་པར་བྱའོ།། 30

ཡི་བསྒྲོ་བར་ཁྱིམ་གཞན་དུ་སྟན་ལ་མི་འདུག་པར་བསླབ་པར་བྱ། 31 སྟན་ལ་མ་བརྟགས་པ་དང་། 32 ལུས་ཐམས་ཅད་ཀྱི་བརྗིད་ཀྱིས་མི་དབབ་པ་དང་། 33 རྐང་པ་མི་བསྣོལ་བ་དང་། 34 བརླ་མི་བསྣོལ་བ་དང་། 35 ལོང་བུའི་སྟེང་དུ་ལོང་བུ་མི་བཞག་པ་དང་། 36 རྐང་པ་མི་དཀྲུག་དང་། 37 རྐང་པ་མི་གདང་བ་དང་། 38 འདོམས་མི་སྟོང་བར་ཁྱིམ་གཞན་དུ་སྟན་ལ་འདུག་པར་བསླབ་པར་བྱའོ།། 39

ཞིག་པར་ཟས་བླང་བར་བསླབ་པར་བྱ། 40 སྣུ་དང་ཁ་ད་ཅད་དུ་མ་ཡིན་པ་དང་། 41 ཚོད་མ་མཉམ་པར་མ་ཡིན་པ་དང་། 42 མཐར་ཆགས་སུ་དང་། ལྷུང་བཟེད་ལ་ལྟ་བ་དང་། 43 བཅའ་བ་དང་བཟའ་བ་མ་འོངས་པར་ལྷུང་བཟེད་མི་ཟེད་པ་དང་། 44 ཡང་འདོད་པའི་ཕྱིར་འབྲས་ཆན་གྱིས་ཚོད་མ་མི་དགབ། 45 ཚོད་མས་འབྲས་ཆན་མི་དགབ་པ་དང་། 46 བཅའ་བ་དང་བཟའ་བའི་སྟེང་དུ་ལྷུང་བཟེད་ནི་མི་གཟུང་བར་བསླབ་པར་བྱའོ།། 47

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ཟས་ལ་ལེགས་པར་བྱ་བ་དྲུག།
ཙུག་ཙུག་ལ་སོགས་རྣམ་པ་ལྔ།
ལག་པ་བསྡུག་ལ་སོགས་པ་ལྔ།།

ལེགས་པར་ཟས་བཟའ་བར་བསླབ་པར་བྱ། 48 ཁམ་ཧ་ཅང་ཆུང་

ཐ་མ་ཡིན་པ་དང་། 49 ཁམ་ཏ་ཙང་ཆེན་པོ་མ་ཡིན་པ་དང་། 50 ཁམ་རན་པ་དང་། 51 ཁམ་མ་བཟས་པར་ཁ་མི་གདང་པ་དང་། 52 ཁ་ཁམ་གྱིས་བཀང་སྟེ་མི་སྨྲ་བར་བསླབ་པར་བྱའོ།། 53

ཙུག་ཙུག་མི་བྱ་བ་དང་། 54 བལྕུག་བལྕུག་མི་བྱ་བ་དང་། 55 ཧུ་ཧུ་མི་བྱ་བ་ནང་། 56 ཕུ་ཕུ་མི་བྱ་ན་དང་། 57 ལྕེ་ཕྱུང་སྟེ་ཟས་མི་བཟའ་བར་བསླབ་པར་བྱའོ། 58

འབྲུ་ནས་ཐ་དད་དུ་མི་བྱ་བ་དང་། 59 ཕྱུས་མི་གདགས་པ་དང་། 60 མཁུར་བ་མི་སྤྲོ་བ་དང་། 61 དཀན་མི་བརྡོགས་པ་དང་། 62 ཁམ་འཕྲོར་མི་བཅད་པར་ཟས་བཟའ་བར་བསླབ་པར་བྱའོ།། 63

ལག་པ་མི་བལྡག་པ་དང་། 64 ལྷུང་བཟེད་མི་བྲོག་པ་དང་། 65 ལག་པ་མི་སྤྲུག་པ་དང་། 66 ལྷུང་བཟེད་མི་སྐྱམས་པ་དང་། 67 མཆོད་རྟེན་འདྲ་བར་བཅོས་དེ་ཟས་མི་བཟའ་བར་བསླབ་པར་བྱའོ།། 68

སྡོམ་ལ།

འཕྱུ་ལ་སོགས་པ་རྣམ་པ་བཞི།
ལྷུང་བཟེད་ལ་ཡང་རྣམ་པ་བཅུ།
འགྲེང་བར་བྱེད་ལ་སོགས་པ་ལྔ།
མགོ་གཡོགས་ལ་སོགས་རྣམ་པ་ལྔ།
དོ་ཀེར་ཅན་ལ་སོགས་པ་དང་།
གླང་ཆེན་ལ་སོགས་གཞོན་པ་ལྔ།

ལག་ན་འཁར་བ་ལ་སོགས་དྲུག།

ན་བ་རྣམ་པ་བཞི་རྣམས་སོ༎

དྲུང་ན་འདུག་པའི་དགེ་སློང་གི་ལྷུང་བཟེད་ལ། ཞུས་གདགས་
པའི་ཕྱིར་མི་བལྟ་བར་བསླབ་པར་བྱ། 69 ལག་པ་ཟས་དང་འབགས་
པས་ཆུ་སྣོད་ལ་མི་བཟུང་བར་བསླབ་པར་བྱའོ། 70 དྲུང་ན་འདུག་པའི་
དགེ་སློང་ལ་ཟས་དང་འབགས་པའི་ཆུས་མི་གཏོར་བར་བསླབ་པར་བྱ། 71
ཁྱིམ་པ་འདུག་པ་ལ་མ་འདྲིས་པར་ཆུས་ཟས་དང་འབགས་པ་ཁྱིམ་གཞན་
དུ་མི་དོར་བར་བསླབ་པར་བྱའོ༎ 72

ལྷུང་བཟེད་ཀྱི་ནང་དུ་ཟས་ཀྱི་ལྷག་མ་བླུགས་ཏེ་མི་དོར་བར་བསླབ་
པར་བྱ། 73 འོག་གཞི་མེད་པའི་ས་ཕྱོགས་སུ་ལྷུང་བཟེད་མི་བཞག་པར་
བསླབ་པར་བྱ། 74 གད་ཀ་མ་ཡིན་པ་དང་། གཡང་ས་མ་ཡིན་པ་དང་།
ཀན་གཟར་པོ་མ་ཡིན་པར་ལྷུང་བཟེད་བཞག་པར་བསླབ་པར་བྱ། 75
འགྲེང་སྟེ་ལྷུང་བཟེད་མི་བཀྲུ་བར་བསླབ་པར་བྱ། 76 གད་ཀ་མ་ཡིན་
པ་དང་། གཡང་ས་མ་ཡིན་པ་དང་། དཀན་གཟར་པོ་མ་ཡིན་པར་ལྷུང་
བཟེད་བཀྲུ་བར་བསླབ་པར་བྱ། 77 འབབ་ཆུ་དྲག་པོའི་རྒྱུན་ལས་བཟློག་
སྟེ་ལྷུང་བཟེད་ཀྱིས་མི་བཅུ་བར་བསླབ་པར་བྱའོ༎ 78

མི་ན་བར་འདུག་པ་ལ་འགྲེང་སྟེ་ཆོས་མི་བཤད་པར་བསླབ་
པར་བྱ། 79 མི་ན་བར་ཉལ་བ་ལ་འདུག་སྟེ། ཆོས་མི་བཤད་པར་
བསླབ་པར་བྱ། 80 མི་ན་བར་སྟན་མཐོན་པོ་ལ་འདུག་པ་ལ། སྟན་དམའ་
བ་ལ་འདུག་སྟེ་ཆོས་མི་བཤད་པར་བསླབ་པར་བྱ། 81 མི་ན་བར་མདུན་དུ་

འགྲོ་བ་ལ་ཕྱི་ནས་འགྲོ་ཞིང་ཆོས་མི་བཤད་པར་བསླབ་པར་བྱ། 82 མི་ན་བར་ལམ་ནས་འགྲོ་བ་ལ། ལམ་གྱི་འགྲམ་ནས་འགྲོ་ཞིང་ཆོས་མི་བཤད་པར་བསླབ་པར་བྱའོ།། 83

མི་ན་བར་མགོ་གཡོག་པ་དང་། 84 བརྫེས་པ་དང་། 85 གཟར་བ་དང་། 86 གཉའ་གོང་དུ་བསྣོལ་བ་དང་། 87 ལྟག་པར་བསྣོལ་བ་ལ་ཆོས་མི་བཤད་པར་བསླབ་པར་བྱའོ།། 88

མི་ན་བར་སྒྲ་དོ་ཀར་ཅན་དང་། 89 ཞྭ་གྱོན་པ་དང་། 90 མགོ་ཅོད་པན་ཅན་དང་། 91 མགོ་འཕྲེང་བ་ཅན་དང་། 92 མགོ་དཀྲིས་པ་ལ་ཆོས་མི་བཤད་པར་བསླབ་པར་བྱའོ།། 93

མི་ན་བར་གླང་པོ་ཆེ་ཞོན་པ་དང་། 94 རྟ་ཞོན་པ་དང་། 95 ཁྲིགས་ན་འདུག་པ་དང་། 96 ཞོན་པའི་སྟེང་ན་འདུག་པ་དང་། 97 འཆིལ་ལྷམ་གྱོན་པ་ལ་ཆོས་མི་བཤད་པར་བསླབ་པར་བྱའོ།། 98

མི་ན་བར་ལག་ན་འཁར་བ་ཐོག་པ་དང་། 99 ལག་ན་གདུགས་ཐོགས་པ་དང་། 100 ལག་ན་མཚོན་ཐོགས་པ་དང་། 101 ལག་ན་རལ་གྲི་ཐོགས་པ་དང་། 102 ལག་ན་དགྲ་ཆ་ཐོགས་པ་དང་། 103 གོ་ཆ་གྱོན་པ་ལ་ཆོས་མི་བཤད་པར་བསླབ་པར་བྱའོ།། 104

མི་ན་བར་འགྲེང་སྟེ་བཤང་གཅི་མི་བྱ་བར་བསླབ་པར་བྱ། 105

མི་ན་བར་ཆུའི་ནང་དུ་བཤང་གཅི་དང་། མཆིལ་མ་དང་། སྣབས་དང་། སྐྱུགས་པ་དང་། ཀླུགས་པ་མི་དོར་བར་བསླབ་པར་བྱ། 106 མི་ན་བར་རྩ་སྔོན་པོ་ཡོད་པའི་ས་ཕྱོགས་སུ་བཤང་གཅི་དང་། མཆིལ་མ་དང་།

སྣབས་དང་། སྐྱུགས་པ་དང་། ཀླུགས་པ་མི་དོར་བར་བསླབ་པར་བྱ།
107 གཞོན་པ་བྱུང་བ་མ་ གཏོགས་པ་ཤིང་ལ་མི་གང་ཙམ་ལས་མཐོར་མི་
མཛེག་པར་བསླབ་པར་བྱའོ།། 108

ཚེ་དང་ ལྡན་ པ་ དག་ བདག་ གིས་ བསླབ་ པའི་ཆོས་མང་པོ་ རྣམས་ གདོན་ཟིན་ཏོ། དེ་ལ་ཚེ་དང་ལྡན་པ་དག་ཅི་འདི་ལ་ཁྱེད་ཡོངས་སུ་དག་གམ་ཞེས་དྲིའོ། ཅི་འདི་ལ་ཁྱེད་ཡོངས་སུ་དག་གམ་ཞེས་ལན་གཉིས་ལན་གསུམ་དུ་དྲིའོ། འདི་ལ་ཚེ་དང་ལྡན་པ་དག་ཡོངས་སུ་དག་ན་འདི་ལྟར་ཅང་མི་སྨྲ་བས་དེ་དེ་བཞིན་དུ་འཛིན་ཏོ།།

རྩོད་པ་ཞི་བར་བྱ་བའི་ཆོས་བདུན།

སྡོམ་ལ།

མངོན་སུམ་དྲན་པ་མ་མྱོས་དང་།
དེ་བཞིན་གང་མང་ངོ་བོ་ཉིད།
རྩ་རྣམས་བཀྲམ་པ་ལྟ་བུ་དང་།
ཁས་བླང་པར་ཡང་བྱ་བའོ།།

ཚེ་དང་ལྡན་པ་དག་རྩོད་པ་ཞི་ བར་བྱ་བའི་ཆོས་བདུན་པོ་འདི་དག་ནི་ཟླ་བ་ཕྱེད་ཕྱེད་ཅིང་སོ་སོར་ཐར་པའི་མདོ་འདོན་པ་ལས་འབྱུང་ངོ་།།

མངོན་སུམ་དུ་འདུལ་བར་འོས་པ་ལ། མངོན་སུམ་དུ་འདུལ་བ་
སྦྱིན་ནོ།། 1

དྲན་པས་འདུལ་བར་འོས་པ་ལ། དྲན་པས་འདུལ་བ་སྦྱིན་ནོ།། 2

མ་སྐྱེས་པས་འདུལ་བར་འོས་པ་ལ། མ་སྐྱེས་པས་འདུལ་བ་སྦྱིན་ནོ།། 3

གང་ཚུལ་ཞིང་མང་པོ་སྦྱིན་པར་འོས་པ་ལ། ཚུལ་ཞིང་མང་པོ་སྦྱིན་ནོ།། 4

དེའི་ངོ་བོ་ཉིད་ཚོལ་དུ་གཞུག་པར་འོས་པ་ལ། དེའི་ངོ་བོ་ཉིད་བཙལ་བ་སྦྱིན་ནོ།། 5

རྩ་བཀྲམ་པ་ལྷ་བུ་འོས་པ་ལ། རྩ་བཀྲམ་པ་ལྷ་བུ་སྦྱིན་ནོ།། 6

གང་ཁས་བླང་བར་འོས་པ་ལ། ཁས་བླང་བ་སྦྱིན་པར་བྱའོ།། 7

བརྩོད་པ་བྱུང་བར་གྱུར་པ་རྣམས། རྩོད་པ་ཞི་བར་བྱ་བའི་ཆོས་བདུན་པོ་འདི་དག་གིས། ཆོས་དང་། འདུལ་བ་དང་། སྟོན་པའི་བསྟན་པ་བཞིན་དུ་དུལ་བར་བྱ། ཞི་བར་བྱ། རྣམ་པར་ཞི་བར་བྱའོ།།

ཚེ་དང་ལྡན་པ་དག་བདག་གིས་རྩོད་པ་ཞི་བར་བྱ་བའི་ཆོས་བདུན་པོ་གདོན་ཟིན་ཏོ། དེ་ལ་བདག་གིས་ཚེ་དང་ལྡན་པ་དག་ལ་ཅི་འདི་ལ་ཁྱེད་ཡོངས་སུ་དག་གམ་ཞེས་དྲིའོ། ཅི་འདི་ལ་ཁྱེད་ཡོངས་སུ་དག་གམ་ཞེས་ལན་གཉིས་ལན་གསུམ་དུ་དྲིའོ། འདི་ལ་ཚེ་དང་ལྡན་པ་དག་ཡོངས་སུ་དག་ན་འདི་ལྟར་ཅང་མི་སྨྲ་བས་དེ་དེ་བཞིན་དུ་འཛིན་ཏོ།།

ཚེ་དང་ལྡན་པ་དག་བདག་གིས་སོ་སོར་ཐར་པའི་མདོ་གདོན་པའི་གླེང་གཞི་གདོན་ཟིན་ཏོ། ཕམ་པར་གྱུར་པའི་ཆོས་བཞི་དང་། དགེ་འདུན་ལྷག་མའི་ཆོས་བཅུ་གསུམ་དང་། མ་ངེས་པའི་ཆོས་གཉིས་དང་། སྤང་

བའི་ལྟུང་བྱེད་ཀྱི་ཆོས་སུམ་ཅུ་དང་། ལྟུང་བྱེད་ཀྱི་ཆོས་དགུ་བཅུ་དང་། སོ་སོར་བཤགས་པར་བྱ་བའི་ཆོས་བཞི་དང་། བསླབ་པའི་ཆོས་མང་པོ་བརྒྱ་རྩ་བཅུ་གཉིས། རྩོད་པ་ཞི་བར་བྱ་བའི་ཆོས་བདུན་པོ་དག་གདོན་མིན་ནོ།།

བཅོམ་ལྡན་འདས་དེ་བཞིན་གཤེགས་པ་དགྲ་བཅོམ་པ་ཡང་དག་པར་རྫོགས་པའི་སངས་རྒྱས་དེའི་མདོར་གདོགས་ཞིང་། མདོར་བསྡུས་པ་ནི་འདི་དག་གོ།།

གང་གཞན་ནས་འབྱུང་བ་ཆོས་ཀྱི་རྗེས་སུ་འཐུན་པའི་ཆོས་དེ་ལ་ཡང་། ཁྱེད་རྣམས་འདུམ་པ་དང་། འཐུན་པར་དང་། དགའ་བ་དང་། མི་རྩོད་པར་སེམས་ཀུན་དུ་བསྲུང་བ་དང་། དྲན་པ་དང་། བག་ཡོད་པས་རྣལ་འབྱོར་དུ་བྱའོ།།

བཟོད་པ་དཀའ་ཐུབ་དམ་པ་བཟོད་པ་ནི།
མྱ་ངན་འདས་པ་མཆོག་ཅེས་སངས་རྒྱས་གསུང་།
རབ་ཏུ་བྱུང་བ་གཞན་ལ་གནོད་པ་དང་།
གཞན་ལ་འཚེ་བ་དགེ་སྦྱོང་མ་ཡིན་ནོ།། 23

མིག་ལྡན་འགྲོ་བ་ཡོད་པ་ཡིས།
ཉམ་ང་བ་དག་ཇི་བཞིན་དུ།
མཁས་པ་འཚོ་བའི་འཇིག་རྟེན་འདིར།
སྡིག་པ་དག་ནི་ཡོངས་སུ་སྤྱོང་།། 24

སྐུར་བ་མི་གདབ་གནོད་མི་བྱ།
སོ་སོར་ཐར་པའང་བསྲུམ་པར་བྱ།
ཟས་ཀྱི་ཚོད་ཀྱང་རིག་པར་བྱ།
བས་མཐའི་གནས་སུ་གནས་པར་བྱ།
ལྷག་པའི་སེམས་ལ་ཡང་དག་སྦྱར།
འདི་ནི་སངས་རྒྱས་བསྟན་པ་ཡིན།། 25
ཇི་ལྟར་བུང་བ་མེ་ཏོག་ལས།
ཁ་དོག་དྲི་ལ་མི་གནོད་པས།
ཁུ་བ་བཞིབས་ནས་འཕུར་བ་ལྟར།
དེ་བཞིན་ཐུབ་པ་གྲོང་དུ་རྒྱུ།། 26
བདག་གི་རིགས་དང་མི་རིགས་ལ།
བརྟག་པར་བྱ་སྟེ་གཞན་རྣམས་ཀྱི།
མི་འཐུན་པ་དང་གཞན་དག་གི།
བྱས་དང་མ་བྱས་རྣམས་ལ་མིན།། 27
ལྷག་པའི་སེམས་ལ་བག་བྱ་སྟེ།
ཐུབ་པའི་ཐུབ་གཞི་རྣམས་ལ་བསླབ།
ཉེར་ཞི་རྟག་ཏུ་དྲན་པ་ཡི།
སྐྱོབ་པ་མྱ་ངན་མེད་པ་ཡིན།། 28
སྦྱིན་པས་བསོད་ནམས་རབ་ཏུ་འཕེལ།
ལེགས་བསྡམས་དགྲ་སོགས་མི་འབྱུང་རོ།

དགེ་དང་ལྡན་པས་སྡིག་པ་སྤོང་།
ཉོན་མོངས་ཟད་པས་མྱ་ངན་འདའ།། 29
སྡིག་པ་ཐམས་ཅད་མི་བྱ་སྟེ།
དགེ་བ་ཕུན་སུམ་ཚོགས་པར་སྤྱད།
རང་གི་སེམས་ནི་ཡོངས་སུ་གདུལ།
འདི་ནི་སངས་རྒྱས་བསྟན་པ་ཡིན།། 30
ལུས་ཀྱི་སྡོམ་པ་ལེགས་པ་སྟེ།
ངག་གི་སྡོམ་པའང་ལེགས་པ་ཡིན།
ཡིད་ཀྱི་སྡོམ་པ་ལེགས་པ་སྟེ།
ཐམས་ཅད་དུ་ནི་སྡོམ་པ་ལེགས།
ཀུན་ཏུ་བསྡམས་པའི་དགེ་སློང་ནི།
སྡུག་བསྔལ་ཀུན་ལས་རབ་ཏུ་གྲོལ།། 31
ངག་རྣམས་བསྲུང་ཞིང་ཡིད་ཀྱིས་རབ་བསྡམ་སྟེ།
ལུས་ཀྱི་མི་དགེ་བ་དག་མི་བྱེད་ཅིང་།
ལས་རྣམས་གསུམ་པོ་འདི་དག་རབ་སྦྱངས་ན།
དྲང་སྲོང་གསུངས་པའི་ལམ་ནི་འཐོབ་པར་འགྱུར།། 32
སངས་རྒྱས་རྣམ་གཟིགས་གཙུག་ཏོར་ཐམས་ཅད་སྐྱོབ།
འཁོར་བ་འཇིག་དང་གསེར་ཐུབ་འོད་སྲུངས་དང་།
ཤཱཀྱ་ཐུབ་པ་གཽ་ཏམ་ལྷ་ཡི་ལྷ།
མི་འདུལ་ཁ་ལོ་བསྒྱུར་བ་བླ་ན་མེད།། 33

འཇིག་རྟེན་མགོན་པོ་སྐྱོབ་པ་མཆོག།
སངས་རྒྱས་དཔའ་པོ་བདུན་པོ་དག།
གྲགས་ལྡན་རྣམས་ཀྱི་སོ་སོ་ཐར།
འདི་ནི་རབ་ཏུ་རྒྱས་པར་བདོན།། 34
འདི་ལ་སངས་རྒྱས་རྣམས་དང་གང་།
སངས་རྒྱས་ཉན་ཐོས་རྣམས་ཀྱང་གུས།
འདི་ལ་གུས་དང་བཅས་གྱུར་པས།
འདུས་མ་བྱས་པ་ཐོབ་པར་གྱིས།། 35
བརྩམ་པར་བྱ་ཞིང་འབྱུང་བར་བྱ།
སངས་རྒྱས་བསྟན་ལ་འཇུག་པར་བྱ།
འདམ་བུའི་ཁྱིམ་ན་གླང་ཆེན་བཞིན།
འཆི་བདག་སྡེ་ནི་གཞོམ་པར་བྱ།། 36
གང་ཞིག་རབ་ཏུ་བག་ཡོད་པར།
ཆོས་འདུལ་འདི་ལ་སྤྱོད་གྱུར་པ།
སྐྱེ་བའི་འཁོར་བ་རབ་སྤངས་ནས།
སྡུག་བསྔལ་ཐ་མར་བྱེད་པར་འགྱུར།། 37
ཕན་ཚུན་ཚུལ་ཁྲིམས་བསྲུང་བ་དང་།
བསྟན་པ་འཕེལ་བར་བྱ་བའི་ཕྱིར།
སོ་སོར་ཐར་པ་འདི་བདོན་པས།
དགེ་འདུན་གྱིས་ནི་གསོ་སྦྱོང་བྱས།། 38

གང་གི་ཕྱིར་ནི་མདོ་བཏོན་དང་།
གང་ཕྱིར་གསོ་སྦྱོང་བྱས་གྱུར་པ།
ཚུལ་ཁྲིམས་དེ་ནི་བསྲུང་བྱ་སྟེ།
གཡག་རྔའི་རྩེ་མོ་ཇི་བཞིན་ནོ།། 39
སོ་སོར་ཐར་པ་བདོན་པ་ཡི།
བསོད་ནམས་གྲུབ་པ་གང་ཡོད་པ།
དེས་ནི་འཇིག་རྟེན་མ་ལུས་པ།
ཐུབ་དབང་གོ་འཕང་ཐོབ་པར་ཤོག།། 40

སོ་སོ་ཐར་པའི་མདོ་རྫོགས་སོ།།

འཕགས་པ་གཞི་ཐམས་ཅད་ཡོད་པར་སྨྲ་བའི་འདུལ་བ་འཛིན་པ། ཁ་ཆེ་བྱེ་བྲག་ཏུ་སྨྲ་བའི་སློབ་དཔོན་ཛི་ན་མི་ཏྲ་དང་། ཞུ་ཆེན་གྱི་ལོ་ཙཱ་བ། བན་དེ་ཅོག་རོ་ཀླུའི་རྒྱལ་མཚན་གྱིས། བསྒྱུར་ཅིང་ཞུས་ཏེ། གཏན་ལ་ཕབ་པའོ།།

MARCH, 1915.

The Monthly General Meeting of the Society was held on Wednesday, the 3rd March, 1915, at 9-15 P.M.

LIEUT.-COLONEL SIR L. ROGERS, Kt., C.I.E., M.D., B.S., F.R.C.P., F.R.C.S., F.A.S.B., I.M.S., President, in the chair.

The following members were present :—

Dr. N. Annandale, Rai Monmohan Chakravarti Bahadur, Dr. B. L. Chaudhuri, Mr. F. H. Gravely, Dr. H. H. Hayden, C.I.E., Rev. H. Hosten, S.J., Dr. Satis Chandra Vidyabhusana.

The minutes of the January Ordinary Monthly Meeting, the Annual Meeting and the February Ordinary Monthly Meeting were read and confirmed.

Fifty-seven presentations were announced.

The following gentleman was balloted for and elected as an Associate member :—

Mr. E. Brunetti.

The General Secretary read the names of the following gentlemen appointed to serve on the various Committees for 1915.

Finance Committee.

The Hon. Justice Sir Asutosh Mukhopadhayaya, Kt., Dr. N. Annandale, Mahamahopadhyaya Haraprasad Shastri, Mahamahopadhyaya Satis Chandra Vidyabhusana, W. Kirkpatrick, Esq.

Library Committee.

S. W. Kemp, Esq., The Hon. Justice Sir Asutosh Mukhopadhyaya, Kt., Dr. N. Annandale, Dr. W. A. K. Christie, Mahamahopadhyaya Haraprasad Shastri, J. A. Chapman, Esq., Dr. E. P. Harrison, Dr. H. H. Hayden, Rev. H. Hosten, S.J., Major D. McCay, I.M.S., Dr O. Strauss, Mahamahopadhyaya Satis Chandra Vidyabhusana, J. Coggin Brown, Esq., H. R. James, Esq., Dr. P. J. Bruhl, G. H. Tipper, Esq.

Philological Committee.

Abdullah Al-Mamun Suhrawardy, Esq., Dr. Satis Chandra Vidhyabhusana, The Hon. Justice Sir Asutosh Mukhopadhyaya, Kt., Dr. Girindranath Mukhopadhyaya, Mahamahopadhyaya Haraprasad Shastri, Rai Monmohan Chakravarti, Bahadur, Babu Muralidhar Banerjee, Babu Nagendra Nath Vasu, Babu Rakhal Das Banerjee, Maulvi Abdul Wali, Dr. A. Venis, Babu

Nilmani Chakravarti, Dr. O. Strauss, Maulvi Hidayet Husain, Aga Muhammad Kasim Sherazi, Rev. H. Hosten, S.J., A. H. Harley, Esq.

The General Secretary laid on the table a photograph of the Memorial Tablet of Dr. David Waldie, which is about to be erected in Dr. Waldie's birthplace, Linlithgow, together with a photograph of the Diploma which Dr. Waldie held, forwarded by Mr. J. D. Nimmo.

The following paper was read :—

1. *Contributions to the Smriti in Bengal, Part I.—By* Rai Monmohan Chakravarti, Bahadur.

In answer to questions by Rev. Father Hosten and Dr. Vidhyabhusana the author said that ancient MS. of Smrti works were preserved by certain Hindu families, to whom doubtful points of Hindu law were referred for settlement even during Muhammadan times. The authors of these works said little about themselves The works were as a rule undated, but their dates could often be determined with the aid of references which they contained to earlier works of ascertained date, and of references to them in later works. Very few of these works had been published since Hindu law was systematized about forty years ago. They are of special interest in connection with social and religious procedure, but a more intimate knowledge of them would have been useful to judges in several cases that have appeared before law courts in modern times.

The Adjourned Meeting of the Medical Section of the Society was held at the Society's Rooms on Wednesday, the 10th March, 1915, at 9-30 p.m.

Lieut.-Colonel Sir L. Rogers, Kt., C.I.E., M.D., B.S., F.R.C.P., F.R.C.S., F.A.S.B., I.M.S., President, in the chair.

The following members were present :—

Lieut-Col. J. T. Calvert, I.M.S., Dr. C. H. Elmes, Major E. D. W. Greig, I.M.S., Dr. W. C. Hossack, Lieut.-Col. W. D. Sutherland, I.M.S.

Visitors :—The Hon'ble Surgeon General G. F. A. Harris, C.S.I., Dr. C. Webb Johnson, Dr. T. S. Sheridan.

The minutes of the meeting held on the 8th July, 1914, were read and confirmed.

Colonel Sutherland, I.M.S., read a paper entitled "Some Cases of Rape." An interesting discussion ensued.

APRIL, 1915.

The Monthly General Meeting of the Society was held on Wednesday, the 7th April, 1915, at 9-15 P.M.

LIEUT.-COLONEL SIR LEONARD ROGERS, Kt., C.I.E., M.D., B.S., F.R.C.P., F.R.C.S., F.A.S.B., I.M.S., President, in the chair.

The following members were present :—

Maulavi Abdul Wali, Mr. Percy Brown, Dr. P. J. Bruhl, Mr. R. C. Burton, Dr. B. L. Chaudhuri, Dr. L. L. Fermor, Mr. F. H. Gravely, Mr. A. H. Harley, Mr. H. C. Jones, Dr. G. E. Pilgrim, Dr. Satis Chandra Vidyabhusana, and three others.

Visitors :—Mrs. Percy Brown, Mr. and Mrs. Everett, Lady Rogers, and three others.

The minutes of the last meeting were read and confirmed.

Thirty-one presentations were announced.

The General Secretary reported that Dr. Adrian Caddy, Lieut.-Col. F. N. Windsor, I.M.S., Pandit Monohar Lal Zutshi, Mr. W. O. H. Arden Wood, and Mr. J. E. Friend-Pereira have expressed a desire to withdraw from the Society.

The following gentlemen were balloted for and elected as Ordinary members :—

Nawab Mahomed Ishak Khan, Honorary Secretary, M.A.O. College, Aligarh, proposed by the Hon'ble Justice Sir Asutosh Mukhopadhyaya, Kt., seconded by Dr. A. Suhrawardy; *Count Kozui Otani*, c/o Consulate General of Japan, Calcutta, proposed by Dr. A. Suhrawardy, seconded by Mr. F. H. Gravely; *Raja Rani Pratapnarain Singh*, Radrapur, District Gorakhpur, proposed by Pandit Monan Dvivedi, seconded by Mr. F. H. Gravely; *Mr. Shripad Krishna Belvalkar*, M.A., Ph D., Professor of Sanskrit, Deccan College, Poona, proposed by Dr. Satis Chandra Vidyabhusana, seconded by Mr. F. H. Gravely; *Mr. C. A. Pardalakis*, Arabic Instructor to the Board of Examiners, No. 10, Bentinck Street, proposed by Dr. A Suhrawardy, seconded by Aga Muhammad Kazim Shirazi; *Mr. A. K. M. Abdus Subhan*, Deputy Magistrate and Collector, No. 13, Taltollah Bazar Street, Calcutta, proposed by Dr. B. L. Chaudhuri, seconded by Mr. K. C. De; *Mr. C. A. Storey*, Professor of Arabic, M.A.O. College, Aligarh, proposed by Mahamahopadhyaya Haraprasad Shastri, seconded by Mr. F. H. Gravely; *The Hon'ble Mr. Surendra Nath Ray*, Member of the Bengal

Legislative Council, proposed by Mahamahopadhyaya Haraprasad Shastri, seconded by The Hon'ble Justice Sir Asutosh Mukhopadhyaya, Kt.

The following papers were read :—

1. *A Preliminary Note on the Prehistoric Cave Paintings at Raigarh.—By* PERCY BROWN.

2. *Sunspots and Prominences.—By* J. EVERSHED.

3. *Grafting the Mango-inflorescence.—By* W. BURNS. D.SC., *and* S. H. PRAYAG, B.AG.

4. *Observations on the Defoliation of some Madras Trees.—By* M. O. PARTHASARATHY IYENGAR, M.A., L.T.

5. *Note on the Flora of the South Indian Highlands.—By* P. F. FYSON, B.A., F.L.S.

6. *The Geological History of Southern India.—By* W. F. SMEETH, M.A., D.SC.

The paper was discussed by Dr. Fermor, Rev. Hosten, Mr. Burton, Dr. Pilgrim and Dr. Satis Chandra Vidyabhusana.

7. *Some Aspects of Ethnographic Work.—By* H. V. NANJUNDAYAYA, M.A.

The reading of the following paper was postponed :—

Palaeontological Notes from Hazara.—By H. C. DAS-GUPTA, M.A., F.G.S.

The Adjourned Meeting of the Medical Section of the Society was held at the Society's Rooms on Wednesday, the 14th April 1915, at 9-30 P.M.

LIEUT.-COLONEL SIR LEONARD ROGERS, KT., C.I.E., M.D., B.S., F.R.C.P., F.R.C.S., F.A.S.B., I.M.S., President, in the chair.

The following members were present :—

Dr. Gopal Chandra Chatterjee, Dr. Harinath Ghosh, Dr. Upendranath Brahmachari, Dr. C. P. Segard.

The minutes of the last meeting were read and confirmed.

Lieut.-Colonel Sir Leonard Rogers, Kt., C.I.E., M.D., F.R.C.P., F.A.S.B., I.M.S., read a paper entitled "The Treatment of Kala Azar with special reference to leucocyte increasing methods, spleen tabloid and alkalies", and Dr. Brahmachari took part.

8. The Geological History of Southern India.

By Dr. W. F. Smeeth, M.A., D.Sc., *State Geologist of Mysore.*

[Paper read at the Second Indian Science Congress, January, 1915.] [1]

I feel that the title I have selected for this paper is rather too wide and ambitious for the subject-matter. My experience in Southern India has been confined almost entirely to that portion of its history which is recorded in the rocks of the great Archaean complex, and to that period the majority of the remarks I have to offer will necessarily relate. This, the most ancient period in the history of the crust of the earth of which we have any visible and tangible record, is however of paramount importance and interest in Southern India, where the Archaean rocks occupy some 80 per cent of the whole surface—south of latitude 16°—and contain, or are genetically related to, all the more important economic minerals of the whole area with the exception, possibly, of diamonds and of the coal of Singareni,—if indeed we can consider the latter to be included in Southern India.

With regard to the comparatively small area covered by rocks of post-Archaean age, a very few remarks will suffice. The story of these rocks is fairly well known and has been very lucidly summarized by Sir Thomas Holland in the delightful chapter on the Geology of India in Vol. I of the Imperial Gazetteer. At the close of the Archaean period Southern India formed part of an extensive land area composed of highly crushed and folded Archaean rocks. An extremely long period of denudation followed during which these rocks were slowly worn down, the upper covering of Dharwar schists being completely removed in places and the underlying gneisses and granites exposed. In places the sea encroached and permitted the accumulation of a great series of sediments which was subsequently raised to form land and somewhat crumpled in the process. The remains of these sediments, composed largely of shales, sandstones and limestones, now form a patch, about 14,000 square miles in area, in the Cuddapah District—the total thickness being over 20,000 feet. The lower 20,000 feet

[1] Much of the evidence on which this account of the geology of Mysore is based has appeared from time to time in the Records of the Mysore Geological Department. A Bulletin giving a summary of the work under the title of "An Introduction to the Geology of Mysore," with a geological map, is under preparation and is expected to issue towards the end of 1915.

which includes numerous basic lava flows and ferruginous jaspers is known as the Cuddapah Series, and this is overlaid unconformably by the Kurnool Series (1,200 feet thick), which is notable chiefly for the occurrence of diamonds in some of the old sandstone and gravel beds at Banganapalle. All of these rocks are unfossiliferous and are regarded as of Precambrian age and correlated with the Algonkian of North America.

After the formation of the Kurnool Series there is an enormous blank in the geological history of Southern India, extending over many millions of years, during which interval the great Palaeozoic sediments from the Cambrian to the Carboniferous were being accumulated in other parts of the world and in India, north of the Peninsula. Of these great formations, in which the earlier records of the evolution of life-forms are preserved, there is no trace in Southern India which appears to have formed an exceedingly stable buttress of the earth's crust while other portions of the crust were continually in a state of flux, being alternately depressed below the sea and raised again into dry land many times in succession.

Towards the close of the Carboniferous period there is evidence, derived from the distribution of land fauna and flora, that Southern India formed part of a great continental area extending to Africa and on to South America on the one side and on the other side possibly to Australia. This old continent, which has been called Gondwanaland, formed a barrier between a southern ocean and a great central Eurasian sea extending from Asia across Northern India, where the Himalayas now stand, into Europe and of which the Mediterranean is a small relic.

Towards the close of the Carboniferous period the geological record is again taken up in Southern India. Denudation had been slowly wearing down the old Archaean and Precambrian rocks and the larger rivers had gradually worn their valleys down to near their base level of erosion with gradual widening of the valleys and the development of slowly moving rivers and large swampy areas. In these areas large tracts of freshwater sediments were formed which included the débris of the luxurious vegetation of the coal measures. The result was the accumulation of a considerable thickness of sediments, known as the Gondwana formation, from Permo-carboniferous to Jurassic times, of which various small patches have been preserved along the eastern side of the Peninsula. The lower portion of this formation constitutes the coal measures of India, and in the south the most important patches are those of the Godavari valley, which include the Singareni coalfield.

At the close of the Gondwana epoch slight alterations in level permitted encroachments of the sea, of which records are preserved in small, but extremely interesting, deposits at Trichinopoly, Cuddalore and Pondicherry containing marine

fossils of Cretaceous age. After this the record is scanty and uneventful and comprises a few beds of presumed Tertiary age in Travancore, the Cuddalore Sandstones of the East Coast from Vizagapatam to Tinnevelly, of Pleistocene age, and the various recent blown sands, alluvium and soils of the coastal strips.

As a contrast to this peaceful story it may be noted that towards the end of the Cretaceous period the old Gondwana continent began to break up and the land connection between Southern India and Africa disappeared under the sea. In the North of India a great series of movements began about the same time, extending into the Tertiary period, which resulted in the gradual rise of the Himalaya and the driving back of the central sea towards its present Mediterranean limits. These movements were accompanied by igneous action on a gigantic scale of which the most striking memento is to be found in the lava flows forming the Deccan Trap, the remains of which form a horizontal layer covering an area of 200,000 square miles in Bombay, Central India and Hyderabad.

In Southern India, therefore, if we exclude the coastal strips we have an area which is formed almost entirely of the most ancient series of rocks of which we have any visible record, and this appears to have remained uncovered by any more recent formation—and almost without movement—during the whole of the vast period represented by the fossiliferous formations of other parts of the crust of the earth.

With this very brief glance at the post-Archaean geology of Southern India we may now turn back to consider the nature of this immensely old Archaean complex, and my excuse for presenting this paper must lie in the fact that in Mysore, which is a fairly typical portion of the complex, we have been endeavouring for some years past to dissect its main structural features and, although the work is far from complete and far from conclusive, some of the facts and opinions reached may be of interest to others. I propose therefore to describe, very briefly, the main components of the Archaean complex as exhibited in Mysore—which comprises an area of about 29,000 square miles—and in doing so I shall endeavour to take these components in the order of their formation, starting with the oldest.

The oldest rocks recognized in Mysore are the Dharwar schists which appear to possess a close resemblance to the Keewatin formation of North America. In other parts of India certain gneisses and schists—such as the Bengal gneiss and the khondalites of Vizianagram—are considered to be older than the great mass of the Peninsular Gneiss and possibly of pre-Dharwar age. Clear evidence on the latter point is however lacking, and in Mysore we have not found any rocks which we can regard as older than the Dharwars.

The Dharwar schists are largely composed of lava flows, associated igneous intrusions and their crushed representatives.

The base of the system is not visible as it has been removed by the intrusion of the underlying granites and gneisses. On lithological grounds the system can be divided into a lower and an upper division without any perceptible break or unconformity. The lower division is composed essentially of dark hornblendic rocks—such as hornblende schist and epidiorite—which are probably metamorphosed basalts and diabases in the form of lava flows, sills, etc., and very possibly some pyroclastic accumulations. The upper division is more varied and consists largely of rocks characterised by the presence of chlorite—such as greenstones and chlorite schists and less commonly mica-chlorite schists and mica schists. Many of the greenstones still exhibit igneous characters and appear to pass insensibly into chlorite schists. In places the micaceous members also appear to grade into rocks of recognizably igneous character.

Taken as a whole the Dharwar rocks afford evidence of very extensive igneous action, and many of the more schistose forms can be regarded as highly crushed and altered igneous rocks. Whether amongst the more schistose members we have rocks of sedimentary origin remains doubtful, as clear evidence is wanting, but it does not seem impossible that of all these rocks many have been derived from igneous material by metamorphic action.

Apart from the undoubtedly igneous types and these doubtful schistose types the system contains a number of other types, the physical and chemical characters of which cause them to stand out more prominently than their actual abundance would otherwise warrant. These are conglomerates, banded-ferruginous quartzites, quartzites and limestones, all of which would usually be regarded as indicative of sedimentary action, and if such action were admitted in the case of these associated types it would go far towards easing the way for accepting a sedimentary origin for many of the more obscure highly schistose rocks associated with them.

The more closely the conglomerates of Mysore are studied, the less probable does their sedimentary origin appear to become. In many cases I am quite satisfied that they are crush-conglomerates formed in shear zones in the schists or in one of the subsequent gneisses or in both. Other cases which have not been closely studied may still be open to question, but on the whole we are fairly well satisfied that their origin is autoclastic and not sedimentary.

The problem of the banded ferruginous quartzites presents much greater difficulty, owing largely to the fact that their contacts with other rocks are very obscure. Owing to their weather-resisting qualities the adjoining rocks are generally weathered and generally also obscured by a talus of quartzite blocks. Contacts are therefore seldom observed, and when found are usually non-commital.

These rocks occur in extensive beds or bands in both the lower and upper division of the Dharwars—being rather more extensively developed in the latter. Frequently folded at steep angles there is little doubt that they were once practically horizontal. On part of the Bababudan hills there is a capping of these rocks which is still comparatively horizontal with moderate undulations and which is still from 300 to 500 feet in thickness. They are composed mainly of alternating bands of finely granular quartz—sometimes extremely fine—and magnetite. Haematite is usually present and often increases to the practical exclusion of magnetite towards the weathered surfaces. This widely distributed series does not appear to be associated with coarser clastic or sedimentary material such as might be expected to occur, if it was formed of ordinary sediments with a tendency to become coarse in the neighbourhood of shore lines. On the other hand, bands of it are found to alternate sharply with undoubtedly igneous material in the shape of basic flows and sills. On account of these difficulties some American geologists consider that the corresponding rocks in the Lake Superior region were formed in tranquil water mainly as chemical precipitates, and that the associated lava flows were sub-aqueous flows. This interesting and ingenious hypothesis would tend to render a considerable proportion of the Dharwar flows sub-aquaeous, owing to the numerous layers of the banded ferruginous rocks and to the absence of conglomerates and coarse sedimentary material in the intervening zones, such as might be expected during a change from sub-aqueous to sub-aërial conditions. On the other hand, if the series is not of sedimentary or chemical origin it is extremely difficult to find a satisfactory explanation for it on account of the completeness of the metamorphism and the difficulty of finding good contacts. It is not impossible that these banded rocks represent sills of highly ferruginous character subsequently altered to quartz and magnetite or even, in some cases, sills of a quartz-magnetite rock such as will be referred to later in connection with the Charnockite series. Whatever the origin of these rocks, there can be little doubt that their banded character is largely secondary. As to their sedimentary or aqueous character, I do not think it can be regarded as definitely proved, although the great consensus of opinion is in favour of such a view.

We may now pass to the quartzites, some of which are practically all quartz, while some are felspathic and some micaceous. There is considerable doubt to what extent these can be regarded as the metamorphosed representatives of sedimentary sandstones. There is a great variety of types and they appear to be of different ages. Many of the beds originally mapped as quartzite have proved on close examination to be altered and silicified quartz-porphyries, some of which retain enough of the

prophyritic character to be recognizable. Others, entirely quartzose, are occasionally found to exhibit intrusive contacts with adjoining rocks, while others of a later date penetrate the subsequent granitic gneiss and even pass from the gneiss into the schists.

There can be little doubt that many of these quartzites are crushed and recrystallized quartz-veins and quartz-porphyries, and possibly felsite, and it is at least open to question whether we have any which are genuine sedimentary rocks.

Finally we have a number of beds or bands of limestone or dolomite which ordinarily would be regarded as of aqueous origin. They are most numerous in the upper, chloritic division, and it may be noted that a large number of the greenstone and chlorite-schist beds are characterised by an abundant development of calcite, dolomite or ferro-dolomite, not only in the doubtful schistose members, but also in those which are distinctly igneous. In addition, some of the gneissic granite bands associated with the schists develop calcite, which in places becomes extremely abundant. By development of calcite, chiefly at the expense of the felspars, we get a series of rocks which approach limestone, and near by we have limestone bands sometimes very siliceous or chloritio and sometimes comparatively pure. The association is suggestive, though I am not sure that we have detected a continuous series, and possibly the purer limestone bands have been concentrated along fissures or zones of weakness. The proof that these beds have been so formed is naturally difficult, but there is much to suggest it.

To sum up these remarks, we have in the Dharwar System in Mysore a great series of lava flows, sills, etc., and their crushed schistose representatives; associated with these are various doubtful schists which are more usually regarded as sedimentary, but which may possibly be igneous. There are also a number of subordinate bands or layers of more distinctly sedimentary habit, such as conglomerates, banded ironstones, quartzites and limestones which are almost universally regarded as of sedimentary origin, but which we in Mysore are inclined to consider as formed from igneous material by metamorphic and metasomatic changes. In some cases there is strong evidence for this, but conclusive proofs are difficult to find and many more instances will be required before such a proposition can be stated in general terms.

Passing now from these components of the Dharwar System we come next to a series of rocks which may be classed as ultrabasic. These consist of amphibolites—often in the form of actinolite or tremolite schists—amphibole-peridotites, peridotites and dunites with their alteration products potstone, serpentine and magnesite. They appear to be sills, dykes and intrusive bosses in the mass of the schists and are regarded as

belonging to the Dharwar System on account of the evidence of their having been cut off and broken up by the subsequent intrusive gneiss. They are of importance for their mineral contents and contain considerable deposits of iron-ore, chrome ore and magnesite. It is very probable that the Chalk Hills of Salem, which are conspicuous on account of the abundance of veins of white magnesite, belong also to this series.

Finally we have some large intrusive masses of diabasic or dioritic character which appear to be later than many of the rocks already mentioned, but prior to the gneiss and so regarded as of Dharwar age.

At the close of the Dharwar age the whole of Southern India was covered with a mantle of these Dharwar rocks several thousand feet in thickness, but successive intrusions of granite from below gradually penetrated or ate into the overlying mantle and this, combined with folding and faulting, caused the lower surface of the mantle in contact with the granites to become a very uneven one. Subsequent denudation for many millions of years removed the greater portion of the mantle of Dharwars, with the result that we now see the underlying granite and granitic gneisses exposed at the surface. The comparatively narrow strips of the Dharwar schists which still remain are but the deeper fragments of the once thick, continuous layer.

With this brief notice of the Dharwar System we may pass on to the subsequent granites and gneisses which now occupy by far the greater part of the whole area.

The earliest of these is a comparatively fine-grained micaceous gneiss with bands and veins of coarser granite, pegmatite and quartz. It is usually highly crushed and frequently contains zones of conglomerate composed not only of round to sub-angular fragments of the various granitic materials but also patches and lumps of the adjacent Dharwar rocks including the banded ferruginous quartzites. This gneiss was first recognized as a wide band near the eastern edge of the Kolar hornblendic schists into which it intrudes in tongues. Some distance south of the Mysore mine the gneiss extends across the strike of the schists and then continues southwards near the western edge of the schist belt. From south of the Mysore mine it sends some tongues northwards into the schists which are soon lost on surface, but some of them have been recognized in the deeper workings of the Mysore mine a mile or so to the north of the outcrops. The gneiss is often characterized by the presence of grains or blebs of opalescent quartz, the colour varying from a slight bluish milkiness to brown or dark grey, and has been referred to as opalescent-quartz gneiss. As a less cumbersome name and on account of its intimate and probably genetic connection with the auriferous veins of the Champion lode of the Kolar Goldfield, I propose to call it,

for the time being, the Champion gneiss. Other patches of what is believed to be the same gneiss have been recognized more recently in the Shimoga, Chitaldrug and Kadur Districts, and several of these contain or form friction-breccias or agglomerates which at one time were regarded as undoubtedly sedimentary conglomerates.

The Champion gneiss represents a very early period of granitic intrusion into the Dharwar schists. Many of the highly crushed quartz-porphyries or fine granite-porphyries which have been alluded to as occurring in bands among the Dharwar schists also contain similar opalescent quartz-blebs or phenocrysts and may very possibly be genetically connected with this early Champion gneiss.

The remnants of the latter are not very extensive, and there is evidence of their having been intruded and cut off by the next succeeding formation which is the great gneissic complex of Mysore and probably of Southern India as a whole.

Until recently this gneissic complex has usually been regarded as the oldest formation of Peninsular India and the term "fundamental," which has been freely applied to it, has usually carried with it the idea that it is the basement rock on which all the others—including the Dharwars—have been laid down. Detailed work over the greater portion of Mysore has shown that this is not the case and that this great gneissic complex is everywhere intrusive into the Dharwar schists and the Champion gneiss. It seems desirable, therefore, to avoid the use of the word "fundamental," and as the complex is probably the most extensive formation of Peninsular India, I propose to call it the "Peninsular Gneiss."

This Peninsular gneiss which underlies and intrudes the Dharwar System and the Champion gneiss is a complex of various granites, but so protean that no adequate description can be given here. The various granites, of which three are often distinctly recognizable, give evidence of successive intrusion, and the fact that the earlier forms contain their own pegmatites, which are truncated by subsequent forms, points to a long-continued period of plutonic activity. Frequently the various members mingle either by repeated injection or absorption or crushing and shearing, and we get zones or areas which are highly banded or crushed or with complex flow structure. Other portions are more homogeneous and appear as granite masses. Amongst these latter are some which may be definitely later in age than the gneiss as a whole, but it is often difficult to decide one way or the other.

Evidence of the intrusion of the Peninsular gneiss into the Dharwar Schists is abundant, and the former bristles, to a variable extent, with lenses, patches, and fragments of the Dharwars chiefly, as might be expected, belonging to the lower or hornblendic division.

It would take too long to enter into any account of the evidences of intrusion or of the contact metamorphism of the schists, and I pass on to the next formation succeeding the Peninsular gneiss.

This next formation is itself highly complex, but, thanks to the genius of Sir Thomas Holland, it can be recorded and summarily dismissed with the name Charnockite.[1] It is a huge plutonic complex, characterized chiefly by the presence of hypersthene, in which the alternating bands, frequently steeply inclined, vary from an acid hypersthene-granite though various intermediate forms to hypersthene-norites and hypersthenites. These rocks form the great mass of the Nilgiris to the south of Mysore and come into Mysore on its eastern, southern and western borders, where they are found distinctly penetrating the Peninsular gneiss both as tongues and as basic dykes. An interesting addition to the series has been identified in Mysore in the form of dykes or narrow intrusive tongues of quartz-magnetite ore. Gradational forms have been found in which the proportions of magnetite and quartz gradually increase with corresponding elimination of felspar, hypersthene and amphibole, until we get to a rock containing 50 per cent of magnetite, the remainder being quartz with subsidiary amounts of hypersthene and garnet.

The last formation of any considerable magnitude is the Closepet granite. It occurs as a band about 20 miles in width running right through the Province in a north and south direction from the southern boundary on the Cauvery river near Sivasamudram to Molakalmuru in the extreme north of Chitaldrug, a distance of over 200 miles. Doubtless it extends much further both north and south into British territory. Topographically it is usually striking, as it forms a great chain of rounded bosses or domes many of which are bare rock. Like most of the plutonics of Southern India, it also is complex and is composed of a mixture of red and grey granites, sometimes coarse, sometimes porphyritic, and sometimes so intermingled or deformed as to become gneiss. It intrudes all the previously mentioned formations including the charnockite. It is probable that other isolated masses in Mysore may belong to the same age, and it is possible that the ornamental porphyry dykes of Seringapatam may be phases of this intrusion.

This completes the distinct members of the Archaean complex which we have been able definitely to recognize in Mysore,—with the exception of various hornblendic and other bassic dykes which I need not refer to here.

Subsequent to the formation and folding of the Archaean complex the whole country has been traversed by a series of

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[1] *Mem., Geol. Survey of India*, XXVIII, pt. 2 (1900).

basic dykes—chiefly dolerites—which from their freshness and the absence of deformation are regarded as post-Archaean, and it has been suggested that they may be of Cuddapah (Algonkian) age.

The only other rock formation in Mysore is laterite, which is of comparatively recent (possibly Tertiary) formation and forms a horizontal capping on the upturned edges of the much denuded Archaeans. There is little doubt that it is mainly an alteration product of the underlying rocks, but the subject is too complex and variable to permit of further reference to it here.

The foregoing sequence of events in the history of Southern India as recorded in the rocks of the Mysore plateau may be exhibited in the following tabular statement.

	1.	Recent soils and gravels.
Possibly Tertiary.	2.	Laterite. Horizontal sheet capping Archaeans.
Pre-Cambrian Algonkian ?	3.	Basic Dykes. Chiefly various Dolerites.

Great Eparchaean Interval.

Archaean.	4.	Felsite and Porphyry dykes.	
	5.	Closepet Granite and other massifs of corresponding age.	
	6.	Charnockite, Norite and Pyroxenite dykes.	
	7.	Charnockite massifs.	
	8.	Various hornblendic and pyroxene granulite dykes.	
	9.	Peninsular gneiss.	Granite and gneissic complex.
	10.	Champion gneiss.	Granite porphyry, micaceous gneisses, felsites and quartz porphyries usually containing opalescent quartz and frequently associated with autoclastic conglomerates.

Eruptive Unconformity.

				Including also :—
Archaean.	Dharwar System (probably Keewatin).	11.	Upper (chloritic) division. (Greenstones and chlorite schists).	Amphibolites, peridotites, etc., mostly intrusive. Conglomerates (autoclastic). Banded-ferruginous-quartzites; origin doubtful, possibly igneous. Quartzites and quartz-schists, mostly intrusive. Limestones; probably secondary. Mica schists; metamorphic igneous. Intrusive masses of dioritic and diabasic character.
		12.	Lower (hornblendic) division. (Epidiorites and hornblendic schists).	

(Unknown).

In conclusion I trust that this brief and very inadequate sketch has at least made it clear that the main features of the geological history of Southern India belong to a very remote and hoary past—a past contemporaneous with the very earliest period of formation of the crust of the earth of which we have any geological record. Very possibly it was a period anterior to the dawn of life, though this is by no means certain. At any rate, it was long anterior to the formation of all those great sedimentary systems in which the geological records of the evolution of life from earlier to later forms have been preserved and which are found but sparingly represented along the coastal margins.

All the central portion of Southern India revelled in a long orgy of igneous activity in the early dawn of geological history, as witnessed by the character of the Archaean complex which I have endeavoured to faintly indicate. Once this orgy was over and the great crushing and folding movements which accompanied it had ceased—possibly something like 40 or 50 million years ago—the country settled down to a perfectly steady and uneventful course of denudation—almost a lethargy, from which it has not yet awakened.

9. The Recent Pearl Fishery in Palk Bay, with Biological Notes upon Pearl Oysters.

By James Hornell, *Superintendent of Pearl and Chank Fisheries to the Government of Madras.*

I. The Pearl Fishery.

During August and September of last year, a small pearl fishery occurred off Tondi in Palk Bay. This fishery, the first of its kind either in India or Ceylon since 1908, when a small one was held off Tuticorin, took place in a locality where the muddy character of the sea bottom has hitherto been considered to preclude the possibility of pearl-oyster existence. It happened, however, that among the recent developments of the Madras Fisheries Department, there figured the consolidation of the chank fisheries along the whole Madras coast; the final phase consisted in the acquisition from the Rajah of Ramnad of his fishing rights on the Indian side of Palk Bay. This gave the Fisheries Department access to and control of this area and thereby permitted of the commencement of a systematic biological survey of the sea-bottom in this peculiarly situated region. The acquisition, effected at the end of 1913, was not long in bearing fruit; a survey of the coastal region, carried out in March and April of the following year, revealed the existence of two beds of pearl-oysters in flourishing pearl-bearing condition off the west coast of Palk Bay. The larger bank lay about seven nautical miles off shore and extended for a distance of five miles parallel with the shore between Tondi and the village of Pasipattanam. The general breadth exceeded half a mile. The oysters were confined to the area lying between the $5\frac{1}{2}$ and $5\frac{7}{8}$ fathom contours and lay on a bottom composed of muddy sand. No rocks occur here and all the oysters were attached to other mollusc shells and fragments and lay loose on the bottom. Associated sedentary organisms were markedly few in species, almost the only ones of importance being scattered lamellibranch molluscs; the chief of these forms found were the curious *Trisis* (*Parallelepipedum*) *tortum*, Lamarck, *Barbatia barbata*, Linn, *Modiolus* (? *barbatus*, *L.*), *Ostrea cristagalli*, Linn., and *Placuna placenta*, Linn., together with *Balanus* sp. A fair number of *Pinna fumata*, Hanley, were present and a *Scrupocellarian* polyzoon was also very abundant in places, attached to the pearl-oyster valves in luxuriant tufted bunches; the fine *Melo indica* (Gmel.) and its huge egg masses with developing young in various stages is characteris-

tic of the area; *Sphenopus marsupialis*, a free-living flask-shaped actinian, is also found, together with numerous simple ascidians with tough tunic and elongated siphons; the latter organisms were usually attached to pearl oyster valves.

The age of the pearl oysters appeared to be from 2½ to 3 years, but in the absence of any inspection of this ground in preceding years this point could not be verified. The yield per dive amounted to an average of six, whenever the weather was fairly favourable for work; but as rough sea and muddy water prevailed during the greater portion of the inspection, it was difficult to form an accurate estimate of the total number of oysters available for fishing. A conservative estimate put the number at a total of 20,000,000, after making all allowances.

The smaller bed located consisted of patches lying in 5 fathoms off Karangadu, a Christian village 7 miles south-west of Tondi. These oysters were appreciably older than those of the Tondi bank, being very little mixed with individuals of younger generations. Very few other living organisms occurred associated with them. The majority of the shells were attached to one another and to small fragments of various shells, the bulk of the remainder to the valves of such lamellibranchs as *Trisis tortum*, *Modiolus* sp. and *Barbatia barbata*. The bunches of polyzoa so common on the pearl oysters off Pasipattanam were conspicuously absent, while practically all the organisms attached to the pearl oysters were dead—they consisted chiefly of *Ostrea* and numerous *Balanus* sp. A few living *Placuna* were, however, present. A considerable number of dead pearl oysters were found often of a size nearly equal to the larger ones of those living. None of this damage appeared to be due to *Cliona*, but the borings of *Polydora hornelli*, Willey, were abundant. The death of nearly all the associated organisms taken in conjunction with the many dead pearl oyster shells clearly signified the existence of dangerous conditions, and I was satisfied they should be fished at the earliest available opportunity.

From both the Tondi and Karangadu beds I collected large valuation samples. On my return to Tuticorin, these were washed under my personal superintendence and the pearls found were then valued by two Indian pearl merchants. The larger bed gave a lower pearl value than that of Karangadu. namely Rs. 7-9-0 per 1000 as against Rs. 10-7-0 for the latter. The character of the pearls varied immensely. Those from the large Tondi bed were extremely few in number; of moderate-sized pearls only 3 were found in the sample of 4300 oysters. whereas there were 19 pearls of equivalent size in 5600 oysters from the Karangadu bed. On the other hand, one pearl from the Tondi oysters was of much larger size than any found in the other lot and would have been worth a large

sum had it been of good colour. Seed pearls (*Tul*) were conspicuously absent from the Tondi oysters, but were present in normal quantity in the Karangadu sample. The experience at the subsequent fishery showed that the bulk of the oysters in the two beds were represented fairly by the samples obtained. It is therefore established that the Tondi oysters were remarkably deficient numerically in pearls, a disability largely counterbalanced by the occurrence of a small number of exceptionally large pearls, frequently of fine quality; many were however distinctly silver-grey in colour, a feature that was markedly characteristic of these pearls. The Karangadu oyster gave a yield in quantity and quality comparable with that given by average quality pearl oysters from the Tinnevelly and Ceylon beds.

Soon after the fishery commenced it became apparent that on much of the area the oysters were too scattered to prove remunerative fishing to the local divers, whose methods lack system and who can never be persuaded to fish regularly and perseveringly. They desire to fish only the rich patches; in consequence, the great bulk of the bank remained practically unfished at the end of the season, and what might have been a highly remunerative fishery, had it been possible to foresee all the difficulties and provide special methods, has proved, in spite of much anxious effort on the part of the officers concerned, of comparatively little financial profit to Government, though, by the prosperity it brought to the fishing population and to local traders, the benefits to the coastal population have been very considerable and highly valued at a time when the far-reaching effects of the war are affecting most adversely the lightermen and boat owners of all coast ports.

Fishing began, in accordance with the public notification, on 27th August, and continued until 19th September.

The Government share of oysters fished was 315,998 from the Tondi bank and 39,613 from the Karangadu bank. Adding one-half to these numbers as representing the share received by the divers as their remuneration, the approximate total of oysters fished amounted to 533,416. The highest price obtained for the oysters in auction was Rs. 125 per 1000 obtained for a small lot on the last day of the fishery. The lowest rate was Rs. 15 per 1000 for 35,247 oysters fished on 29th August. The average rate per 1000 was Rs. 26-6-4 over the whole fishery. For the Tondi bank oysters the average was Rs. 22-8-2 per 1000, whereas the Karangadu oysters averaged the high rate of Rs. 57-5-10, as these were believed by the merchants to be older and certainly contained a greater weight of pearls per 1000 than those from the Tondi bank.

Results were much inferior to expectations. Inspection in April showed 20,500,000 oysters to be available for fishing; preparations were made accordingly on a scale appropriate to a

fairly large fishery. Unfortunately, the present war broke out three weeks before the fishery began and this affected the results most adversely in every direction—direct and indirect. A rumour gained wide currency that the fishery would be postponed in consequence of the outbreak of war, and this held back all the wealthy Bombay buyers who otherwise would have attended. The danger of the disappearance of the oysters during the ensuing interval prevented any postponement till another year and the fishery had accordingly to be carried on as best might be. Instead of the 100 boats estimated to be necessary for effective fishing, 37 was the largest number ever engaged in one day. Competition at the auction was frequently weak and there was very little demand for oysters in large quantities.

The results obtained at this Tondi Fishery are sufficient to suggest that whatever advantages "skin" diving has under the conditions that prevail in the Gulf of Mannar, where the oyster-bottom is principally sand interspersed with much live coral and blocks of stone, it is not the most suitable on the level muddy stretches of the Palk Bay beds. Now while in Ceylon dredging and trawling for oysters have been tried with unsatisfactory results, there is good reason to believe the latter method would prove remunerative on the Indian side of Palk Bay. The reward, if the attempt were to be successful, should be great, for the pearl value of these peculiar oysters has been certified as exceptionally high at the fishery just closed. Although the pearls were few in number, when found they were frequently of unusually large size. The largest I saw was one obtained by one of the Sub-Magistrate's clerks in a small lot of a dozen oysters bought for eight annas. It measured $\frac{9}{32}$ inch in diameter and weighed $1\frac{3}{16}$ manjadi. Its appearance was most handsome, the skin perfect, the lustre fine, the shape absolutely spherical, and the colour good though a trifle yellowish. The owner was offered Rs. 1,200 on the spot, but he refused to sell at this, believing the pearl to be worth considerably more. Merchants stated that they very seldom find pearls approaching this size in Ceylon oysters and hence the speculative value of the Palk Bay oysters is wonderfully high, so that although the valuation sample in April was estimated on its pearl yield to be worth only some Rs. 8 per 1000 oysters, on one occasion only did prices fall during the fishery so low as Rs. 15; the average was about Rs. 25 per 1000 and a considerable quantity was sold in the neighbourhood at Rs. 50 per 1000.

Although no record exists of the occurrence of pearl fisheries off Tondi in previous years, there is strong reason to believe that the present bed of pearl oysters is not an isolated event. Owing to the fact that till recently Government had neither the organization nor the means for the proper investigation of their fisheries, it can be readily understood how easily

beds of pearl oysters lying several miles off the coast may often have existed and have eventually died off without the revenue authorities having the least inkling of the wealth lying neglected at their door; even if the local fishermen were aware, they knew their business better than to breathe a hint to those in authority. Hence in pearl fishery matters, now that an energetic and enterprising Fisheries Department has grown up in Madras through the patient endeavour of Sir Frederick Nicholson, the one golden rule to be observed is to spend every available day of good weather upon the survey of the sea-bottom in Palk Bay and the Gulf of Mannar in the search for pearl oyster beds and to fish as vigorously as possible all finds made, either employing skin divers when the ground is rough or some mechanical means such as trawling when the bottom is level and uninterrupted as at the Tondi Pearl Fishery.

No beds of pearl oysters have been found in the Gulf of Mannar on either the Ceylon or the Tinnevelly banks since 1908 in spite of exhaustive inspection. The inference is clear that no beds have existed there since 1908, and it became a puzzle to know whence would come fresh spat to repopulate the denuded beds. Let it be understood at once that this denudation was absolute and not partial. No beds of pearl oysters whatever were present. From historical evidence it is clear that this failure cannot be permanent. A change is certain to come sooner or later, but the source of new supply was unknown. The Tondi discovery appears to have solved the problem, and as occasional rumours of the occurrence of pearl oyster deposits in Palk Bay have been persistent for years, this evidence points to Palk Bay being the motherland of the Gulf of Mannar pearl oysters—the locality whence fresh supplies of spat are carried by currents and drift through Pamban Pass and the channels of Adam's Bridge. I think it probable that the Tondi bed may even now be sending off swarms of spat to effect the re-population of the Tinnevelly and Ceylon banks, and I have strong hope that extensive deposits will be found there within the next year. It is noteworthy that in April last the plankton taken off the Ramnad coast teemed with immense numbers of pearl oyster larvae; the current during part of that month was distinctly to the southward, hence we may hope that a considerable multitude of spat passed through Pamban Pass and over Adam's Bridge into the Gulf of Mannar; a fresh spatfall may also have settled in Palk Bay itself—this will be the subject of investigation in the present year (1915). In view of the foregoing, the discovery of the Tondi Pearl Bank may well be considered as the beginning of a new era in the history of the Madras Pearl Fishery, and if the quantity of oysters fished in September has been small, we may console ourselves with the fact that the continued survival of large numbers will give another opportunity to the oysters to shed

vast quantities of spawn, some of which may lay the foundation of new deposits to be fished under more favourable natural conditions than those that prevailed at the past fishery; in any case it is desirable that a large breeding reserve should be conserved to provide fresh swarms for the re-population of other areas.

I am inclined to think that eventually the produce of natural oyster beds will become of inferior importance to the industry that must arise in the near future from the conduct of cultural operations directed to the inducement of pearls in a comparatively limited number of pearl oysters kept in captivity or bred for the purpose. In this case, the natural beds will have their own value in supplying the raw material required for treatment in the "pearl-farm," as we may appropriately term the pearl-inducing establishment.

There are already two pearl-farms in existence for the production of attached or button pearls, and by means of improvements in methods wherein the writer has already had substantial success, the artificial production or rather inducement of the much more valuable free spherical pearl is now within view. On the Indian coasts there are several sites excellently situated to become fitting centres of forced pearl-production. One of these is near Pamban at the head of the Gulf of Mannar, and sanction has now been given by the Government of Madras to proposals for the establishment there of a small Biological Station equipped with the means to afford a test on practical working lines of the commercial value of such operations carried out under Indian conditions. The enterprise is one which seems well suited to the genius of Indian workers; effective apparatus, manual dexterity, patience and the careful supervision of the treated oysters are the main requirements of success.

II. Biological Notes.

1. *The Limitations of Pearl Oyster Habitat in Palk Bay.*

The strict limitation of the Palk Bay beds of pearl oysters to the horizon between 5 and $5\frac{3}{4}$ fathoms is emphatic. Outside the latter depth not a single oyster was obtained; the reason being that beyond the $5\frac{3}{4}$ fathom line the ratio borne by mud to sand in the composition of the bottom increases so rapidly that beyond 6 fathoms the bottom consists entirely of soft bluish grey mud containing scarcely any sand and only a few small dead shells, very sparsely distributed; only animals specially adapted to a strictly muddy habitat can there survive. Life on the bottom beyond the 6 fathom line in Palk Bay is sparse in quantity and restricted in species, the most characteristic being the peculiar Polynoid polychaet, *Panthalis nigromaculata*, Grube, inhabiting a muddy tube.

Such conditions as these are impossible for the pearl oyster, and indeed for any lamellibranch, except such forms as *Placuna placenta*, which has evolved a greatly compressed body and highly flattened disc-shaped valves, admirably adapted to enable it to resist engulfment when resting on soft mud.

Why another limit of range is found close to the 5 fathom line (5¼ fathoms in the case of the Tondi bed, 5 fathoms in that of the Karangadu bed) is more difficult of explanation. Elsewhere I have found occasional pearl oysters living in good health in shallows in a few feet of water; I have kept hundreds for months in cages suspended from four to five feet below the surface, and these have thriven and grown at a greater rate than oysters living on the best situated of the natural beds in Ceylon waters at the depth and in conditions considered most suitable—from 8 to 9 fathoms on sandy bottom interspersed with flat masses of calcareous rock. I have no hesitation in saying that mere depth of water over the bed has nothing to do with the problem. Neither has the peculiar quality of the bottom where the oysters are found. This is certainly not ideal for pearl oyster prosperity, being a dirty dark greyish blue muddy sand overlain by a thin layer of mud, when the sea has been calm for some days. A ground swell or bad weather for a day is enough to make the water over the beds turbid and discoloured with fine muddy sediment in suspension. This condition is, *a priori*, not favourable to growth. The general appearance of the oysters bore this out; never have I seen the tissues of any Tondi pearl oysters otherwise than thin and unpleasant to the eye when compared with the fatness and rich appearance of well-grown ones from the Ceylon and Tuticorin banks. The white fatty tissue so marked a feature of the mantle in the latter is notably poorly developed; usually no trace is to be seen of it, the mantle in consequence being transparent enough to permit the outlines of the gonads and digestive glands to be clearly distinguished. Landward of the 5¼-fathom line the ratio of mud present in the sand decreases markedly, the bottom being usually a brownish sand of somewhat varying fineness mixed sometimes with a large proportion of shell fragments. Except on tide-swept sand banks in very shallow water, none of this sandy bottom is clean and free from mud; the coarse quartz grit so conspicuous a feature of the best Ceylon banks is wholly absent. The bottom fauna living in this shallow water area is generally enormously abundant. Sometimes, as over much of the ground between 4½ and 5¼ fathoms, thousands of acres are covered with a dense deposit of large mytilids, which, in lieu of rock whereto to attach, spin a web of byssal threads wherein the community live and which forms a veritable carpet stretching continuously, in one case noted, to a distance of rather over a mile with a breadth of nearly a quarter mile. On this living carpet live vast numbers of

predatory starfishes, mainly the colour-variable *Pentaceros nodosus* ; *Luidia maculata* also abounds.

In places where these mytilids do not monopolize the bottom the faunal diversity is greater. From 3 to 5 fathoms, wherever the sand is fairly clean, Echinoderms abound, especially the flattened *Echinodiscus auritus* and *Clypeaster humilis*, the pretty *Salmacis bicolor* and the ubiquitous *Pentaceros nodosus*. Several sponges are fairly numerous, especially a *Chalina*, which gives shelter to the pretty lilac and white striped *Synapta striata* ; a great number of crabs are seen, notably the splendid *Neptunus pelagicus* (which is the object of large net-fishing off this coast); gastropods, such as *Turbinellas pyrum* var. *obtusa*, *Oliva*, *Murex* of many species, and *Natica* are all numerous, especially the first named which is fished on this coast in tens of thousands on behalf of Government. Tube-building polychaets (Terebellids, Onuphids, etc.) are abundant locally.

In still shallower water, from 1 to 3 fathoms, the bottom is much obscured by the growth of marine phanerogams (*Halophila*, *Zostera*, etc.); on these, and on the hydroid zoophytes frequently associated, a host of small sponges, tunicates, polyzoa, red algae and Caulerpas are found. *Pteroceras* is exceedingly abundant in these shallows, and in places a black *Antedon* is seen in hundreds. Holothurians (*H. atra* and *H. marmorata*) are also characteristic, sometimes very common.

Why then, if such variety in species and such abundance in individual numbers exist at a depth less than $5\frac{1}{4}$ fathoms, are pearl oysters absent from these depths? It appears to me that the physical character of the bottom is not at fault; indeed, from comparison with the known facts of the Gulf of Mannar beds it appears certain that the fairly clean brown sand often met with off Tondi between 4 and 5 fathoms is actually a better bottom for oysters than that which they do favour. Neither is the planktonic food supply at fault in the shallows, for I have always found greater abundance there than in the deeper water farther from shore. If then neither the character of the bottom nor the food supply be at fault in the shallower water, the absence of pearl oysters from that area is most likely to be due to the presence of certain enemies there that are not found in the deeper water. Now no *Pentaceros nodosus* were ever found on the pearl beds off Tondi, whereas these starfishes were often taken by the dozen in the dredge in depths below 5 fathoms. I am therefore forced to the conclusion that the pearl oyster is able to thrive in depths of $5\frac{1}{4}$ to $5\frac{7}{8}$ fathoms in Palk Bay because some local characteristic of the bottom at this depth – probably its considerable muddiness —precludes oyster-eating starfishes from living there. It would therefore appear that the Palk Bay pearl oysters have found between the $5\frac{1}{4}$ and $5\frac{7}{8}$ fathom lines a narrow strip of territory where the balance of life-factors, although the margin is small

and hazardous and not wholly satisfactory, is sufficiently in their favour to permit of a continued existence and the perpetuation of the race from year to year in the same habitat. By no other reasoning can I account for the facts as we find them. I should add that there is a marked absence of oyster-eating fishes such as *Balistes*, *Lethrinus*, *Lutjanus* and *Rhinoptera.* Taken as a whole, the fish fauna of Palk Bay is characteristically not a bottom-feeding class owing to absence of rocks and the prevalence of muddy bottom. The great majority are shoaling fishes belonging to the families of Carangidae, Clupeidae, Scombridae and their congeners.

2. *Pearl Oyster Spat.*—During the inspection from April 10th to 28th, 1914, numerous plankton hauls were made. Few pearl oyster larvae were taken in those made while the inspecting vessel was at work on the pearl banks, but all shallow water hauls made when the vessel lay at anchor in 2 and 2½ fathoms off the villages Karangadu and Tirupalakudi gave many examples. This was particularly the case with the earlier hauls made from 10th to 12th April inclusive. In all these the tiny "wedge-shaped" advanced veligers of the pearl oyster showed as a thick sand deposit when the plankton was killed and had time to settle. In bulk these shelled veligers invariably exceeded the rest of the plankton obtained on these particular days. In structure and size they agreed exactly with those figured on page 128, vol. I of Herdman's Ceylon Pearl Oyster Report (fig. 42, I). This veliger stage, which I shall term stage I, was considered by Herdman the oldest free-swimming larval stage, but on 11th April over a dozen shelled larvae of a more advanced stage II were taken in the townet from a depth of 1 foot from the surface. This stage differs from I by a considerable increase in size gained by a growth of prismatic shell substance along the margins of the larval valves. Professor Herdman and the writer both considered this as the earliest sedentary stage, as we found multitudes in this condition crawling upon seaweeds brought up in the dredge. The specimens taken on 11th April, 1914, show however that the sedentary habit is not fully fixed at this stage; those I obtained then were capable of locomotion by swimming as well as by crawling. Examined alive under the microscope no velum was discernible; when thrown into water or when rapid motion was imparted to the water in which it was, this larva progressed by the rapid snapping of its valves in much the same way as the glochidium larvae of Anodon do when swimming. This then is an alternative method of progression possessed by larvae of this stage, particularly in the presence of a rapid current; it thus becomes of considerable import when considering the dispersal of pearl oyster spat. Stage II, as observed at Karangadu, was unmistakable pearl oyster spat, for though in general appearance very like spat

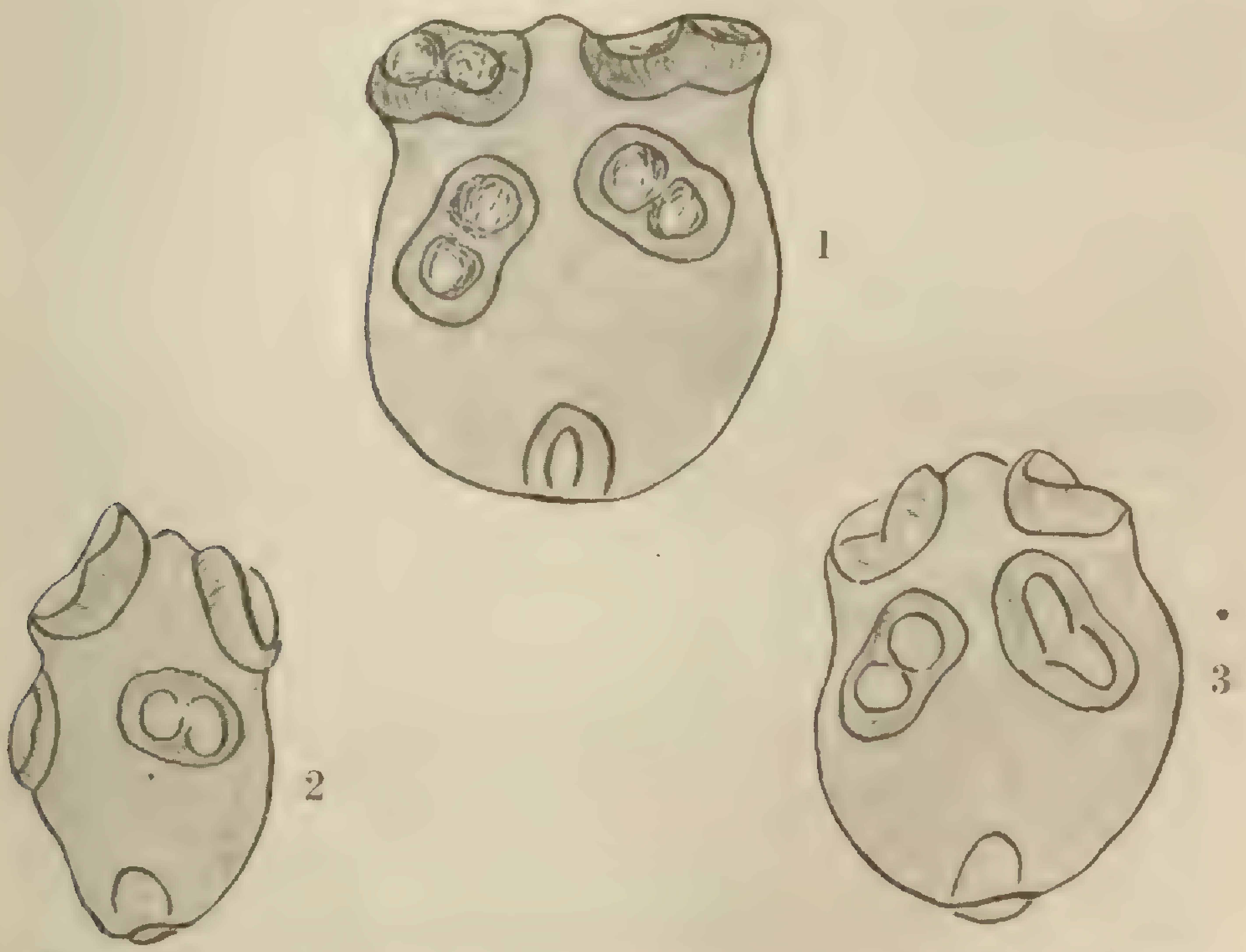
of *Avicula vexillum*, it showed, on microscopic examination, distinct traces of incipient "finger" processes along the edges of the growth rings in the peripheral prismatic shell area. The marginal area of the shell was more or less greenish in tint with distinct radial bands of brown and dark green.

Off Tirupalakudi on April 28th, stage I was again present in the plankton taken both at the surface and at 1½ fathom, the ship being anchored in 2½ fathoms. The numbers were however greatly reduced, and it was obvious that no extensive fresh spawning had taken place during the fortnight's interval subsequent to April 13th. A few specimens of the more advanced stage II were also seen, exhibiting again free-swimming habits, when the water was agitated.

Much more important was the capture of a yet further advanced stage still retaining the free swimming habit. Of this latest stage (stage III) three specimens in all were taken, one in one haul and two in a second. The three averaged 4·6 mm. in length, a size hitherto unquestioned as being of wholly sedentary habit. On putting them into a small aquarium, I noted, as I have done in Ceylon, their great activity and eagerness to crawl up vertical surfaces by means of the foot. One made two byssal threads within half-an-hour, exceedingly tenuous, but still capable of supporting the body. To test their power of adhesion I swirled the water round and emptied it suddenly. The two that were on the side of the glass attached by byssal threads both lost hold, parting with the root of the byssal cable (which remained attached to the glass) and became loose, abandoning themselves to the current. This I am inclined to think holds good under normal conditions in the sea; whenever a strong current or heavy sea washes the place where these spat are, as for instance after such a prolonged period of strong North-East wind as prevailed for 24 hours previous to the capture of the three larvae in question in the townet, the water in the shallows is so disturbed that these young probably quit their footholds and are carried along by the current. The observations made show that when in stage III, oyster spat readily detach, and move freely on and over the sea bottom, and there is now good reason to believe that in the presence of a strong current, these larvae rise to some few feet from the bottom and assist the current to transport them by a violent snapping of the valves, less vigorous and sustained however than in the case of spat at the age of stage II. The weeds and shells on the bottom where the three examples of stage III were taken were carefully examined without success for fixed pearl oyster spat of the same age, and there is no question that those taken were in a free swimming condition, temporary though it may have been.

The importance of the above observations on the subject of the dispersal of pearl oyster spat needs no arguing, as they

make it clear that the duration of the free-swimming period has been considerably under-estimated hitherto. Instead of the young oyster settling down at the end of the shelled veliger stage, it may be continued for some considerable time after the velum has been lost and the growth has commenced of adult shell substance at the edges of the larval valves. How long this further period of conditional free-swimming life may extend is uncertain, but if we consider the relative sizes of stages I, II, and III, it is probable that 4 or 5 days separate the larger sizes of stages I and II, and a similar period those of stages II and III. In such case pearl oyster larvae may



There cestode larvae (*Prosthecobothrium trygonis ?*) from cysts in the liver of pearl oysters from Palk Bay. Drawn under slight pressure. × 80.

be subject to current dispersal for as long a period as 15 days from the the date of spawning.

3. *A new potential pearl-inducing cestode larva.*—During the inspection of the Tondi oyster beds, I dissected many pearl oysters to ascertain if they contained parasites similar to those found in individuals from the Ceylon Pearl Banks. On the whole their parasite population agreed within the limits found to characterise different Ceylon Pearl Banks. Nematodes were plentiful in the adductor muscles; the little trematode *Muttua margaritifera*, Shipley and Hornell, was not uncommon, and encysted Tetrarhynchids were usually present in the intestine wall, two or three in each individual; spherical cestode larvae

were present, but in rather smaller numbers than in the case of normal Ceylon specimens. In all except three instances these showed the mono-bothridial type figured in the Ceylon Reports as an early larva of *Tetrarhynchus unionifactor*, S. and H. Three specimens proved to belong to a different genus which has not been signalized hitherto as a pearl oyster parasite. These larvae were found in minute spherical cysts imbedded in the digestive gland of two oysters taken from the same section of the bed on the same day; no others of the same species were subsequently found, though careful search was made. Each of these three larvae, when liberated from the enclosing cyst, was seen to be sub-spherical in form, one end marked as anterior by the presence of four prominent bilocular bothridia set equidistant in the form of a square. At the posterior pole a small vesicular organ was present. (Figs. 1-3).

The points of resemblance borne by the bothridial arrangement and form in these larvae to those of the scolex head of the genus *Prosthecobothrium* are so well marked that I am satisfied these larvae belong to that genus; the particular species they resemble most closely is *P. trygonis*, S. and H., and as such I tentatively identify them.

10. Some Aspects of Ethnographic Investigation.

By H. V. Nanjundayya, M.A., M.L., C.I.E.,
Vice-President, Section of Ethnography, Ind. Sci. Congress (1915).

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The Census Reports of India and the various Gazetteers contain a large amount of miscellaneous information bearing on the manners and customs of different castes and tribes. But the investigation about caste and tribal usages was placed on a systematic basis when the Ethnographic Survey of India was organized under Sir Herbert Risley, whose work in this field will long continue to be of preponderant authority. A number of questions were drawn up and sent out to those who undertook to make the investigation in different provinces. As the experience on the basis of which these heads of enquiry were formulated had been mainly gathered in Northern India, it is not strange that certain details which are of subordinate significance in other parts of the country, are put forward as important, while other matters of more importance in other localities are either ignored or thrust to the background.

Anthropology, as you know, may be said to have begun with the study of savages. Most of the works which have given dignity to the subject have been written about the manners and customs of the primitive races. The civilised nations of the West have little or no respect for customary rites and creeds merely as such. They have become rationalistic and utilitarian; and if occasionally they have kept up some ceremonies and social rules of the old world, they attach no value to them, and have no faith in their efficacy or binding force, but keep them up as picturesque survivals of a bygone age. Things that were once held most sacred and mysterious are merely enacted as stage plays and are carefully rehearsed beforehand for a study of realistic effect.

We shall no doubt not readily concede, at any rate without many important reservations, that we are much behind our Western brethren in intelligence and refinement of understanding. But we cannot help admitting that the great majority of our people believe in the efficacy and necessity of our caste rules and customs. To us they are living forces and not merely curiosities of a pre-historic age. No doubt, they are gradually but slowly losing their strength and their hold on popular belief and allegiance, and it may be that many of them will eventually die out. It is perhaps all the more interesting and necessary that they should be investigated and

registered while yet there is time. It may be that a study of these beliefs and vestiges of long-forgotten creeds may discover unexpected and disconcerting affinities; but an ethnographist has no bias and no partiality; he records facts collected on a systematic plan and generally leaves it to others to draw inferences.

Reasoning is a much slower and more laborious process in the earlier stages of culture than those who are educated according to modern methods are apt to imagine. Imitation and usage are the most powerful factors in the maintenance of social and religious customs, and they have the merit of saving a great deal of personal trouble. The scope of Ethnography is explained as a systematic description of the characteristics, history, traditions, customs, language, religion, and generally of the mental, social and political condition of peoples, races, tribes, castes and similar ethnic or social groups. Ethnology has usually concerned itself more with people in the earlier and relatively primitive stages of development. The reasons for this limitation of its sphere are not far to seek. We are, or consider ourselves to be, quite familiar with what goes on around us; and we take these things as a matter of course and do not consider it worth our while to waste time in recording them. Perhaps also in our familiarity, we miss the traits and peculiarities that are really vital and important. Moreover the phases of the society of the earlier ages and stages have passed away or are likely soon to pass away; and we are anxious that they should be investigated and recorded before they are irrevocably lost to us. Perhaps also with regard to ourselves and our present, we lack the disinterested aloofness and judicial impartiality that are necessary for a proper scientific investigation of such facts. We can afford to be (as a recent writer puts it) candid about bees and ants, and may dissect and describe the manners and customs and characteristics of people who are far removed from us. But when it comes to a description and consideration of our own manners and customs, we are troubled with many doubts and distractions.

The peculiarity of our country in respect of ethnographic research seems to me to be that many customs and usages exist here as living facts, side by side with a culture not attained by any race which has hitherto been supplying the data accumulated by investigators in this field.

I may perhaps now proceed to give certain examples to show that there are important differences between Northern and Southern India—at any rate, I can speak with some confidence of Mysore—in the applicability of the tests laid down in the guide issued under Sir Risley's direction for determining the comparative rank and other significant details of different castes and tribes within the pale of Hinduism. The Southern

Indian castes are (theoretically at any rate) more exclusive than in the north, in the matter of eating and drinking. The water test has no applicability, for the higher castes do not use water touched by any caste with whom they are prohibited from taking meals. Between boiled articles and fried articles of food there is no doubt some difference even in this part of the country; but here again, the higher castes consider it correct to avoid altogether any prepared food touched by those whom they consider inferior in caste or rank. The test whether Brahmans minister or not to any caste also has only a limited application. There are many quite important castes, who do not require the services of the Brahmans at all; and no Brahmans can be discovered in this part of the country who have lost status from rendering religious service to any castes.

Of the questions required to be specially answered, some are quite useless and inapplicable in Mysore. Hypergamy, except as an indication of a natural desire to marry a girl in as high a family as possible, shows very little trace of its existence, and polyandry is quite unknown. Polygamy is indeed theoretically permissible, but it has practically disappeared.

Totemism occupies an important place while dealing with savage tribes. In his great work on Totemism and Exogamy, Dr. J. G. Frazer has defined Totemism as an intimate relation which is supposed to exist between a group of kindred people on the one side and a species of natural or artificial objects on the other side, which objects are called the totems of the human group. As observed in India, it is defined as the custom by which a division of a tribe or caste bears the name of an animal, a tree or a plant, or of some material object natural or artificial, which the members of that group are prohibited from killing, eating, cutting, burning, carrying, using, etc. The latter description answers with a fair degree of accuracy, to what has been gathered in the course of ethnographic enquiries in Mysore. In many non-Brahman castes, the names of exogamous divisions are given as those of a plant, or a mineral or other material object, and the prohibition to cut, burn or otherwise injure these objects is observed. In other cases, no particular significance is attached, while perhaps in some of them, the restrictions have been forgotten. Some of the Morasu Okkalu divisions even refrain from touching the article that has given the name to them. In other castes (e.g., Madigas), though the rule of not cutting, eating, etc., is observed by some subdivisions, in others, it is altogether forgotten, and no significance is attached to the name. Curiously in some cases a new prohibition is substituted for one that has been forgotten, e.g., a particular flower or a particular grain. During marriages, among Brahmans, a twig of a particular tree is worshipped as house-god (ಮನೆ ದೇವರು),

but it is not used to name the subdivision and no prohibition as to its use is observed. It is said that each family worships the tree or shrub which its ancestor caught to save himself from the flood at the universal deluge. In many castes, however, there are no vestiges of such observances, and the subdivisions are named on some other principle altogether.

Between this kind of observance and that described by Mr. Frazer as totemism there is a very wide difference. There is here no idea of any identity of interest or intimacy of relationship between a tribe bearing a name and the article denoted by the name, though how this particular name was originally adopted, cannot be guessed now. In some cases, the restrictive rules are not at all known, and the names do not even denote exogamous groups. It may therefore be doubted whether there is anything gained by applying the same term to such diverse things as totemism as observed among savage races, and what passes as such among Indian tribes and castes. At any rate, I do not think that the evidence justifies us in stating the conclusion otherwise than as I stated in connection with the subdivision of the caste of Kurubas: "These names, if totemistic at all, may be so in only a few cases, while a large number seem to be names adopted without any inward significance. In some instances, however, it is well ascertained that the objects which give the name to a group are not used for eating or otherwise even now . . . it should be premised that much stronger evidence than this is required to justify the conclusion that they originated with what is styled totemism when dealing with primitive tribes."

It may be interesting to notice some of the difficulties experienced in the collection of facts and beliefs concerning Ethnography. In the first place, men who have the requisite knowledge are rare. In the case of the majority of castes, there are no written accounts and one has to rely on the memory of the older members or of the priests or others who are acquainted with the manners and customs of the group. There are whole villages in which the number of any particular caste is insignificant, and none of them are familiar with such details concerning themselves. Then again, the original customs themselves are often forgotten, and the members have satisfied themselves by copying those of their neighbours who are nearest to them in rank. In many cases, where the inner meaning of a particular usage is not understood, they have either dropped the original usage or substituted something in its place. Indeed I should not be surprised that when the accounts of the Ethnographic Survey of India have been some time before the world, they should be appealed to as authoritative expositions of the usages of particular castes by the castes themselves. At any rate, I am certain that we take

more care and work more disinterestedly to ascertain and record existing usages and beliefs. Some people are so impressed with the usefulness of getting their real or fancied claims recorded in these books, that I have often received representations from representatives of various castes, asking me to class them under such and such heads, and to show their superiority over other rival castes in various particulars.

Another serious difficulty often experienced is the anxiety of various castes to advance claims which are not generally admitted by their neighbours, or to conceal facts and usages which may have the effect of making them rank with castes considered inferior. This often takes the form of giving out Gotras like the Dvija classes, denying the use of certain articles of food and drink eschewed by what are considered the higher castes, putting on the sacred thread after the manner of the Brahmans, denying the existence of practices regarded as heterodox such as marriages of grown-up women, marriage of widows, and the dedication of unmarried women as Basavis.

With a growing tendency to challenge the superiority of the Brahman caste, is observed an anxiety to claim the title in some form or other for themselves and a tendency to subject themselves to fresh restrictions to make good that claim. It seems to me that some of these people do not know how well off they are, and wish to put on manacles of usages which the Brahman is finding burdensome.

In some cases, the more advanced members of a community have organized leagues and gone about among their people, telling them what names and titles to give out to the Census officers, and what practices to conceal or deny to the more inquisitive investigator of Enthnography. It has become almost impossible to get an unvarnished account of actually existing divisions and subdivisions of certain castes. Thus where the practice of Basavi dedication was freely admitted some years ago, it is felt (and naturally so felt) that it is degrading, and its existence is denied even where it has not died out. One can sympathize with this feeling and it may reasonably be hoped that the feeling is the first step in real reformation. In many non-Brahman castes, there are two kinds of marriages, the more formal one, and the less formal one known as Kutike (or union). To one who looks to the essence and not merely to form, there is little difference between the two; but the observance of the latter is not always admitted. A similar remark may be made about the marriage of widows.

Again in some castes, which do not admit the superiority of the Brahman, they divide themselves into the standard four castes, though perhaps their caste or religion was from the outset regarded as a protest against the peculiarly Brahmanical tenets. A number of Gotras are instituted and each family assigned some one of them, and directed only to return that

and to deny the existence of any different *ratio dividendi* at all in the caste. Curiously, however, if one goes to the interior of the country and catches unsophisticated elderly members to question, they are found to be quite ignorant of the new-fangled Gotras and Sutras and admit the existence of various so-called unorthodox usages and institutions, and answer to the old names of recognized subdivisions.

One of the important questions that are required to be answered relates to the origin of castes. How or why a particular caste arose, or why distinctions which are merely social or transient in all the other countries of the world became stereotyped and unalterable in India, is a large question which an ethnographist who is concerned more with facts and beliefs than with theories, can hardly be expected to answer. But the answers generally elicited in the course of such investigation are sufficiently curious to deserve a passing notice. There is hardly a caste that if it does not claim direct divine descent, is satisfied without some divine intervention at its birth. When the Lord of the Universe found it necessary to light the world at night, he created a caste out of the sweat of his body and commissioned it to provide oil to the inhabitants. Another caste sprung out of a sacrificial fire to provide bangles and other articles of feminine adornment, to satisfy the longings of a divine lady. The need to clothe mankind brought another caste; and the wish of the gods for exhilarating drinks gave rise to another, of which the fall into this mundane sphere was caused by the sin of covetousness, as the members took to adulterating the liquor. Even the humble caste of Madigas claim to be connected with a Rishi at their origin, and say that their low state is due to the partiality of their progenitor for beef. The caste of barbers was born from the eye of Siva, and became Nayana-Khshatriyas. Vaddas were created also out of the sweat of his body by Siva who wished to find water to assuage the thirst of his consort Parvati.

Such accounts of fanciful origin merely point to a consciousness in the community to show that they realize the function which each particular caste came to fulfil in the social economy, or to distinguish their tribal or local origin from that of the general population of the province in which they find themselves. There are indeed stories which are even more fantastic and of which it is difficult to make out the meaning or to which only a far-fetched semblance of meaning can be attached.

In a few cases, however, less ambitious and perhaps historical traditions of origin are recounted. They are chiefly concerned with showing that the caste in a particular locality was originally not indigenous. Thus the Dombar caste came from the Telugu country; Komatis or Vaisyas from Ayodhya in Northern India; and Kadugollas from the neighbourhood of

Delhi. Some, such as Lambanis, indicate the place of their origin from the language used by them and from their usages which differ palpably from what are observed around them.

The determination of the social status and the relative rank of castes is one of the most delicate tasks falling to the lot of an ethnographist in this country. It is perhaps the best course to eschew it and to resort to some colourless arrangement, as an alphabetical one. Still the thing exists and the accounts will be incomplete if some information is not given on this head. Some terms such as Sudra and even well-known names of particular castes have altogether to be avoided if one would not raise a hornet's nest round one's ears. A change of name, it may be true, does not import a change of quality in the object named, but if people have a strong sentiment on such matters, there can be no harm in respecting it. There is an agreement among people generally that the old names Brahman, Kshatriya and Vaisya connote a certain degree of superior social rank. Many castes who did not think of claiming these distinctions formerly, are now anxious to class themselves under one or the other of them, while with some inconsistency, they would not tolerate similar pretensions on the part of their rivals. Many classes would range themselves as Brahmans, while some go further and claim to be the only true and genuine original Brahmans. In the same way, many classes have ranged themselves as Kshatriyas, while a few with more modesty are satisfied to be Vaisyas.

Still, there are some principles which are undisputed and which would provide a ready test for setting at rest such controversies. The most important test is that of birth and descent, which is all but conclusive in the case of individuals. The next element is whether a particular caste has been habitually following the particular Samskaras such as Upanayana, etc., laid down in the Sastras for the Dvija classes. Another is provided by the standard of personal hygiene, and the observances of rules of ceremonial purity. Articles of food and drink are arranged in a certain order; flesh eating is considered incorrect for certain castes, and so the drinking of spirituous liquors. Even among those to whom meat is not prohibited, certain classes of meat such as beef are absolutely forbidden to all but three or four of the lowest strata of society. Then there are some customs, such as marriage after puberty and marriage of widows, which are considered improper for certain castes, and the same remark may be made about some trades and professions. Lastly, there is the traditional rank of each caste, which though concealed from Census returns, is well settled and thoroughly well known to the other castes living in the locality.

Then as to marks which differentiate castes, the rule of endogamy is perhaps the most important test. Yet it would

not be correct to say that the caste circle and the circle of endogamy are the same. It is well known that there are many different endogamous groups or sub-castes among Brahmans, and in many non-Brahman castes such as Gollas and Bedas. The larger classes are universally regarded as comprising a single caste, and there is nothing to be gained by altering the signification of such a well-known term by making caste synonymous with an endogamous group. One effect of such a change would be to make the work of the social reformer more difficult; for though an intermarriage between different castes may at present be taken as quite inadmissible, that between persons of different endogamous groups within the same caste, would only be regarded as, at its worst, an incorrect thing.

The other test, of commensality, is still less a guide. Leaving the Brahmans apart who cannot eat with other castes, there are groups of castes which are allowed to dine together, though they cannot intermarry. Thus for example, Okkaligas of different castes, Kurubas, and some other of the higher non-Brahman castes can all dine in each other's house. It may be a wise thing for reformers for a long while yet to direct their efforts chiefly on the fusion of such groups by introducing inter-marriages between sections who can publicly dine with each other. The only certain test appears to be birth in a caste as attested by general repute, though certain castes admit recruits from higher castes to a limited extent. The difficulty of applying any other test led to the common reluctance to have social relations with persons whose origin was unknown.

I suppose it was the great anxiety to secure purity of blood, that was at the bottom of the custom of child marriages. Still, the rule does not seem to have originally been so rigorous as it has become in recent times. It is curious that Nambudri Brahmans who are most rigid in following the old Sutras, should have no objection to keep women unmarried to a late age. Perhaps it is compensated for by the inquisitorial rigour with which they pursue those unfortunate women who are suspected of any sexual weakness. You know that we have a mild law in Mysore intended to check unduly early child marriages; but the principal persons who incur penalties under it are invariably those in whose caste late marriages are not at all considered heterodox. I have not come across a single case among Brahmans, among whom marrying girls below ten is becoming quite exceptional. We may safely assume that even without any outside stimulus of legislation, the age of marriage is being gradually raised in the higher castes.

Religion, like language, though intimately associated with caste, is not by any means a decisive factor. Accession to an utterly alien faith like Christianity or Muhammadanism irrevocably breaks the bonds of caste; but within the pale, a great deal of latitude exists. Within the caste of Brahmans and

within its sub-castes (or endogamous groups) there may be members who speak Telugu or Kannada or Tamil, and there may be men who are Saivas or Vaishnavas, or Smartas, Maddhvas or Sri-Vaishnavas. The same phenomenon, allegiance to different faiths (Saiva or Vaishnava or even Jaina) may be observed within the pale of many non-Brahman groups as well as difference of home language according to the place of birth of the individuals. As for minor deities, faith or want of faith in them hardly counts for anything.

I am afraid, gentlemen, that I have taken more than my just share of your valuable time; and thanking you for the indulgent hearing you have been pleased to give me, I beg you to forgive the inevitable defects in my treatment of a subject of wide interest and importance.

11. Dakshindar, a godling of the Sunderbuns.

By Bimala Charan Batabyal.

Communicated by the Anthropological Secretary.

[With Plates XI—XII.]

Dakshindar, Kalurai Dakshindar, or Dakshinrai is a godling widely worshipped in the rural districts of Bengal, especially in those adjoining the Sunderbuns. Dakshindar or Dakshinrai means the Lord of the South and, as the Sunderbuns are in the south of Bengal and are infested with mischievous wild beasts, especially the ferocious Bengal tiger, the influence of the deity on the tiger is popularly deemed to be quite sufficient to check its extensive havoc in the villages lying in the neighbourhood of the Sunderbuns. The godling is usually represented as a huge human head with flat face, large eyes, lips extending from ear to ear, with large grinning teeth and a thick moustache, expressly intended to frighten away the tiger as a scare-crow. The terrible form with the fixed gaze of the eyes inspires terror in the heart of the beast. In some instances the form is that of a human being riding a tiger. The worship of the god is generally held in the month of *Magh*, corresponding to part of January and February. There is no fixed day for the worship, as it is held during the month on different days in different localities. Night is the usual time for the worship. Lower class people gather in large numbers at the place of worship with offerings of rice, fruits and sweets, with goat and ducks for sacrifice. The worship is conducted by a Brahmin priest. The tiger appears chiefly in very cold winter nights in the villages close to the Sunderbuns, and this fact accounts for the reason why the worship is held at night in the month of *Magh* when the cold of winter is usually greatest in Bengal. The paraphernalia of the worship, such as the glaring torches, beating of the gong and the tomtom, large crowds howling at the pitch of their voices, especially when a goat or duck is sacrificed, tend to drive away the tiger from the vicinity of the place of worship. Almost every village of importance in the rural districts of Bengal has a fixed place of worship, which is generally on one of its borders, the number of images worshipped being in many instances more than one. In some villages the number of images exceeds a dozen. Generally one or more Manasha (*Euphorbia neriifolia*, Linn.) trees are planted near the place of worship.

The procedure in the worship of Dakshindar is the same

as that followed in the worship of *Ganesha* or *Ganapati*, who is looked upon as the origin of success in every undertaking and destroyer of all evils..

The origin of Dakshindar is obscure. No account of it is to be found in the *Vedas* or *Puranas*. There are different modern accounts giving diverse versions of the origin. One account says that while Ganesh was born, all gods came to pay him a visit. But when *Shani* (Saturn or Cronos), the brother of *Durga*, mother of *Ganesh*, came and saw his nephew, his head vanished and an elephant's head was instantly secured and fitted into his neck. The missing head of *Ganesh* is Dakshindar. Hence the worship of Dakshindar is the same as that of Ganesh. Another account says that there was once in the district of Jessore a Rajah called Dakshin Rai. He scoured the Sunderbuns several times and bagged each time such a large number of tigers that his sight became a terror to the tigers of the Sunderbuns. A third account says that Dakshindar is one of the good spirits (*Pramathas*), a follower and agent of *Shiva*. The fact that the worship of Dakshindar is confined to the lower castes of Bengal, most of whom are of mixed descent, being partly Aryan and partly aboriginal, shows that it is one of the relics of aboriginal rites which has come down and that, subsequently, to invest it with a semblance of the authority of the *Shastras*, the missing head of *Ganesh* has been introduced by some Brahmin priests to account for its origin.

The shape of the idol is that of an ordinary earthen vessel with a crown at the top. The crown, which is usually larger than the face, is of the shape of a betel-leaf, conical at the top but flat in the middle. The idol is prepared with earth, dried in the sun and then coated with chalk. In some cases, especially in those of big idols, the earthen image is burnt after drying to make it stand the effects of weather. The colours used on the chalk-coating are black and red. The eyes, eye-brows and the moustache are painted black and the nostrils, lips and gums are painted red. The crown is also painted with black and red and in some cases with black only.

The back of the idol is not painted and so has the usual colour of earth or earth burnt red. The workmanship is very clumsy and no attempt is made to improve the workmanship, most probably in fear lest the terrible effect of the appearance should be reduced. The size of the idol usually varies from 3 inches to 5 feet in height and from 2 inches to $2\frac{1}{2}$ feet in breadth. The idol, when very small, is generally used as a toy for children.

The specimen, figured 1 and 2, is from Boral (2 miles from Garia, a station of the E.B.S.R., Southern Section) and was presented to the Indian Museum in 1914 by Mr. J. A. Jones. Its actual dimensions are as follows:—

Height of the idol with crown ..	..	1 ft.—8 inches.
Diameter of the face ..	..	8 ,,
Height of the crown ..	..	11½ ,,
Breadth ,, ,, ..	..	10 ,,
Height of the face ..	..	8½ ,,

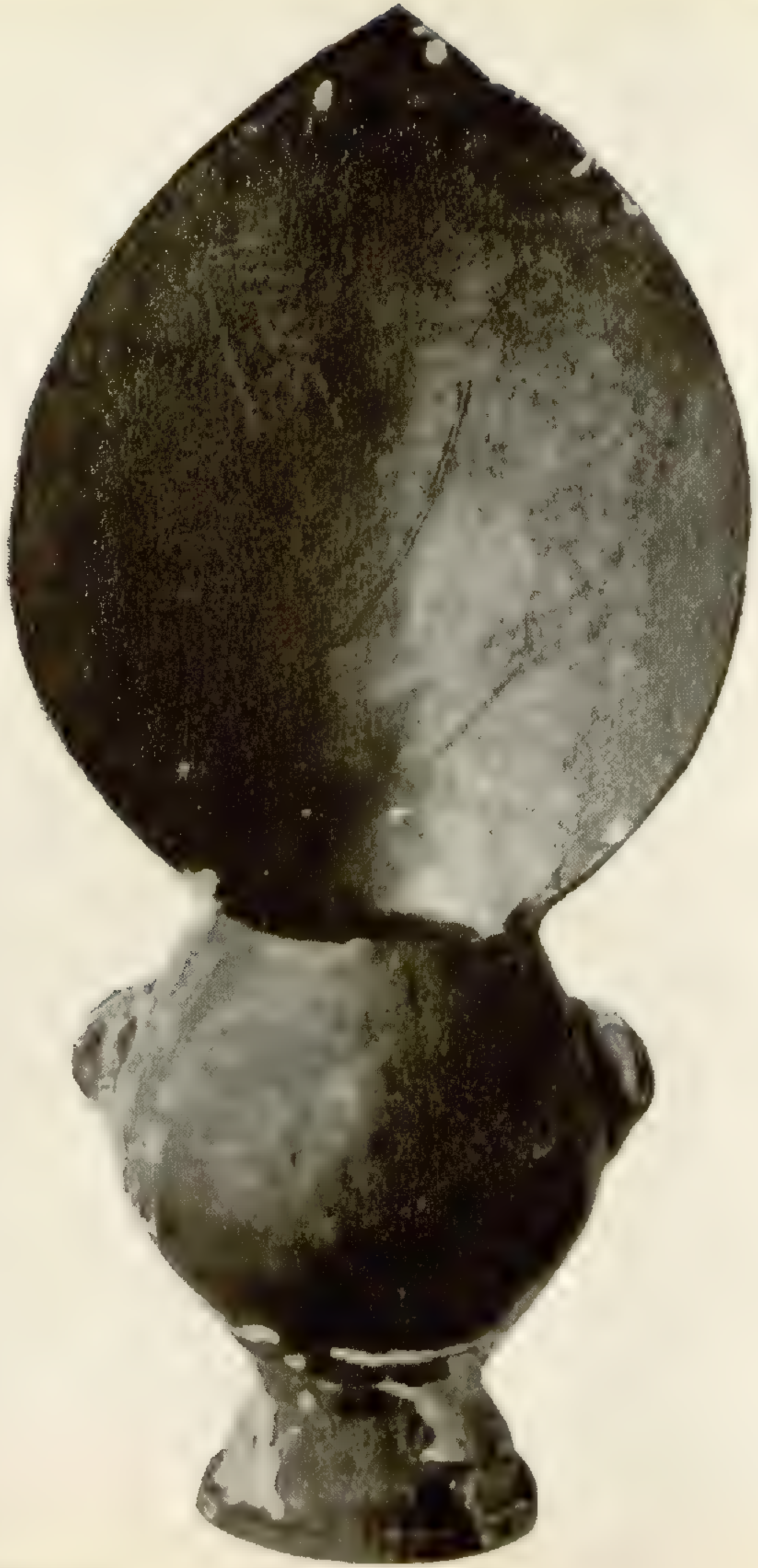
EXPLANATION OF PLATE XI.

Fig. 1.—Anterior view of the specimen in the Indian Museum.
,, 2.—Posterior ,, ,, ,, ,, ,, ,,

EXPLANATION OF PLATE XII.

Fig. 1.—Photograph of the worship of a cluster of godlings at Chungati, 5 miles from Sonarpur (E.B.S.R., Southern Section) taken on the 16th January, 1915.

1.



2.

IMAGE OF DAKSHINDAR.

WORSHIP OF DAKSHINDAR.

MAY, 1915.

The Monthly General Meeting of the Society was held on Wednesday, the 5th May, 1915, at 9-15 P.M.

LIEUT.-COLONEL SIR LEONARD ROGERS, KT., C.I.E., M.D., B.S., F.R.C.P., F.R.C.S., F.A.S.B., I.M.S., President, in the chair.

The following members were present:—

Nawabzada A. K. M. Abdus-Subhan, Khan Bahadur, Dr. N. Annandale, Rai Monmohan Chakravarti, Bahadur, Dr. B. L. Chaudhuri, Mr. T. P. Ghose, Mr. S. W. Kemp, Mr. R. D. Mehta, C.I.E., Dr. Nares Chandra Sen Gupta, Dr. O. Strauss, Dr. A. Suhrawardy, Dr. Satis Chandra Vidyabhusana.

The minutes of the last meeting were read and confirmed.

Fourteen presentations were announced.

The General Secretary reported that Major H. B. Foster, I.M.S., and Babu Radha Krishna have expressed a desire to withdraw from the Society.

The General Secretary laid on the table a programme for the Vallauri Prizes.

These prizes—value 26,000 and 25,000 francs, respectively—are offered by the Royal Academy of Sciences, Turin—the one for the most important contribution to physical science made between 1915 and 1918, the other for the best critical work on Latin literature published between 1919 and 1922.

The following gentlemen were balloted for and elected as Ordinary Members:—

Babu Giris Chandra Chakravarti, Pleader and Zamindar, Kishorgunge (Maimensingh) proposed by Dr. B. L. Chaudhuri, seconded by Dr. Satis Chandra Vidyabhusana; *Mr. L. F. Rushbrook Williams*, B.A., B.Litt., F.R. Hist. S., University Professor of Modern Indian History, Allahabad, 3, Cawnpore Road, Allahabad, proposed by Mr. Gerald Gardner Brown, seconded by Dr. A. Venis; *Khaja Mohamed Abdul Hai*, Professor of Arabic, Divisional College, Meerut City, proposed by Dr. A. Suhrawardy, seconded by Mr. S. W. Kemp; *Mr. H. St. J. B. Philby*, I.C.S., Secretary to the Board of Examiners, 1, Council House Street, Calcutta, proposed by Dr. A. Suhrawardy, seconded by Hon. Justice Sir A. T. Mukerjee, Kt.

The following papers were read:—

1. *History of Mithila during the Pre-Mughal Period.—By* Rai Monmohan Chakravarti, Bahadur.

2. *Contributions to the History of Smrti in Bengal and Mithila.—By* Rai Monmohan Chakravarti, Bahadur.

3. *History of Navya Nyaya in Bengal and Mithila.—By* Rai Monmohan Chakravarti, Bahadur.

Dr. Satis Chandra Vidyabhusana spoke and Rai Monmohan Chakravarti replied.

JUNE, 1915.

The Monthly General Meeting of the Society was held on Wednesday, the 2nd June, 1915, at 9-15 P.M.

LIEUT.-COLONEL SIR L. ROGERS, KT., C.I.E., M.D., B.S., F.R.C.P., F.R.C.S., F A.S.B., I.M.S., President, in the chair.

The following members were present :—

Dr. N. Annandale, Mr. A. C. Atkinson, Dr. P. J. Bruhl, Mr. J. A. Chapman, Dr. B. L. Chaudhuri, Mr. T. P. Ghose, Dr. W. C. Hossack, Dr. Satis Chandra Vidyabhusana, Mr. E. Vredenburg.

Visitors :—Babu B. C. Batabyal and Mr. Robert H. Bodger.

The minutes of the last meeting were read and confirmed.

Twelve presentations were announced.

The General Secretary reported that Mr. Bonham Carter, I.C.S., had expressed a desire to withdraw from the Society.

The following papers were read :—

1. *Palaeontological Notes from Hazara.—By* H. C. DAS-GUPTA. *Communicated by the Biological Secretary.*

2. *Dakshindar, a godling of the Sunderbuns.—By* BIMALA CHARAN BATABYAL. *Communicated by the Anthropological Secretary.*

3. *North Indian Folk Medicine for Hydrophobia and Scorpion Sting.—By* SARAT CHANDRA MITTRA. *Communicated by the Anthropological Secretary.*

4. *The Weighing Beam called Bisá Dangá in Orissa, with Short Notes on some Weights and Measures still current among the Rural Population of that Division.—By* B. L. CHAUDHURI, D.Sc.

5. *The Recent Pearl Fishery in Palk Bay, with Biological Notes upon Pearl Oysters.—By* JAMES HORNELL. *Communicated by the Biological Secretary.*

12. The Action of Light on Silver Chloride.

By P. S. MacMahon.

[Read at the First Indian Science Congress on January 15, 1914.]

The first object of the present investigation was to ascertain the nature of the coloured compound or products obtained by the action of light on silver chloride. The results hitherto obtained by the many investigators who have attempted the problem are so much at variance that it was thought worthwhile to clear up if possible some of the more prominent contradictions. The present paper can make no claim to having attained finality in the solution of the very complex problem subsequently disclosed, but it is hoped that some explanation has been found of certain discrepancies between two of the more important theories as to the nature of the product.

Broadly speaking, there have been three rival theories as to the composition of the dark substance obtained by the action of light on silver chloride, namely: firstly, that it is a subchloride of silver, secondly, that it is an oxychloride, and thirdly, that it is an allotropic form of reduced silver.

The first theory has been the most generally accepted and was first widely promulgated by the American chemist Carey Lea in a brilliant and masterly series of researches which laid the scientific foundations to the modern art of coloured photography. The experimental basis upon which this hypothesis rests, consists briefly in the fact that the darkening of AgCl in sunlight is accompanied by an evolution of small quantities of chlorine and that the resultant substance obtained contains in consequence more Ag than corresponds to the formula AgCl *but* that no metallic Ag can be dissolved out of it by dilute HNO_3. The existence of a subchloride insoluble in HNO_3 has therefore been postulated.

The second theory forms the subject to which most attention has been given up to the present stage of the investigation, and although experimentally authenticated, it has been found untenable. The third theory, a modified form of which appears to be the correct one, will be adverted to later.

The difficulties in the way of settling apparently such a simple problem as to whether the reductive product contains oxygen or not are due to the fact that when light acts upon solid AgCl, the action is confined to an excessively thin opaque layer on the surface of the solid which effectually prevents the great bulk of the substance from further change. The amount

of reduced chloride formed scarcely ever amounts to more than 1% of the whole and there are therefore great analytical difficulties in the way of settling its composition. The only well-established fact about the decomposition is that it is accompanied by an escape of chlorine gas if dry and if under water, with the production of HCl and $HClO_3$ in solution.

That oxygen is essential to the darkening of the chloride was first stated by *Hunt* (Researches on Light 1854), who showed that when AgCl is exposed to light in a bent tube the other limb of which dipped into water, absorption of oxygen took place. This however, as pointed out by *Meldola* (Chemistry of Photography 1901) does not afford conclusive evidence of the absorption of oxygen by the darkened product inasmuch as some of the oxygen present may unite with the nascent chlorine evolved with the production of a soluble oxide of chlorine.

Meldola himself in the same work however supports the oxychloride hypothesis and quotes in its support the work of *Hodgkinson* who was stated to have isolated a compound of the type Ag_2O, AgCl.

Richardson (J. C. S. 1892) on the other hand was of opinion that the darkened product contains no oxgyen, having found only very minute traces of water formed when Hydrogen is passed over the dry heated sutstance. He also found that darkening takes place when dry AgCl is exposed to light under dry CCl_4 and therefore protected from air. The subchloride hypothesis was supported by *Guntz* (C. r. 1891) *Günther*, and *Carey Lea*, who found that rapid action take place when melted AgCl is exposed to light under dry petroleum.

The oxy-chloride hypothesis was supported by *Bibra* (*Journal für pract. Chemic. Bd.* 12) who found practically no loss of weight to take place when AgCl loses chlorine in light and by *Sahler* (Phot. Mitt. Bd. 13) who showed that AgCl darkens in pure nitrogen very slowly compared with oxygen.

H. B. Baker (J.C.S. 1892) found that when AgCl is confined in a bulb and exposed to light over strong KOH that contraction of the air inside the bulb takes place, and moreover that the darkened product yields water when acted upon by hydrogen in a furnace. Completely pure AgCl did not darken in vacuo, nor in perfectly moisture-free oxygen. It did not darken under perfectly pure CCl_4; darkening commenced however as soon as air was allowed access to it. The product treated with conc. KCl dissolved completely, and the solution became alkaline as might be expected if oxychloride were present.

Baker furthermore carried out a series of quantitative measurements in which the oxygen was measured by noting the contraction which took place inside a scaled bulb containing the chloride and copper foil to absorb the chlorine liberated, and allowing for absorption of oxygen by the copper. The reduced Ag was measured by acting on the darkened product

with NH_4HO and weighing the residue of Ag. From these data he deduced the formula Ag_2ClO for the oxychloride.

The first step in the present investigation was to verify Baker's work. For this purpose AgCl was either sealed up in a bulb with oxygen together with some substance to absorb Cl such as Cu or Ag, and confined over KOH solution. After some three months' exposure to the Indian sun the volume of oxygen was in each case measured. It was found that undoubted contraction took place, but to a much smaller extent than that found by Baker. 40 gms. of the pure chloride exposed in a 500 c.c. bulb after three months gave an absorption of only 3½ cc.

The dried product was next examined in a specially constructed apparatus for oxygen. Pure dry chlorine was prepared by the electrolysis of conc. HCl at low current density in an apparatus with sealed-in C electrodes, and dried by means of P_2O_5. It was found impossible, as a matter of fact, to prepare perfectly oxygen-free chlorine this way, and in the first analysis allowance was made for the small amount of oxygen in the chlorine. Perfectly pure Cl was subsquently prepared by a method given by Wöhler v. Streicher (*Berichte* II, 1913) by the action of HCl on ppted MNO_2 hydrate. The whole of the apparatus was composed of glass, the junctions between the jena and ordinary glass parts were made by Baumbach, Manchester. The darkened product was placed in a jena tube fitted at either end with three-way vacuum taps and the whole apparatus except the electrolytic vessel evacuated. Pure dry chlorine was then allowed to act on the gently-warmed photochloride, and the evolved oxygen measured. 30 gms. of the darkened mixture evolved 4 cc. of oxygen.

It was very soon found however that no relation existed between the amount of oxygen evolved, and the weight of silver residue obtained by the action of conc. NH_4HO. The silver was determined either by the action of conc. NH_4HO on a weighed amount of the darkened product until no more AgCl was dissolved out, and then weighing the residue of Ag; or by the action of acqua regia on the darkened product which completely reconverted it into normal chloride. The amount of Ag got in this way varied very greatly in different samples and bore no stoichiometrical relation whatever to the oxygen evolved.

The effect of heat on the darkened substance was next determined:—

2,6267 gms. were dried 8 hrs. at 110—120°.

The weights after successive dryings were as follows:—

110–120°	8 hrs.	=2,62655	−0,00015
150–160°	8 hrs.	=2,62605	−0,0005
200–210°	8 hrs.	=2,62562	−0,00043
Melted		=2,6255	−0,00010

The total loss of weight was only 1,2 mgms. The bulk of this was lost between 150–210°, and probably was due to the decomposition of the small amount of oxygen compound present. An intimate mixture of the dry darkened product was made with pure KCl, and the mass fused and extracted with pure water in Pt vessels.

A slight alkaline reaction was in all cases obtained with phenolphthalein and the filtrate.

It was next attempted to prepare photochloride containing a larger amount of the reduced product. A material of this kind was made by the repeated action of dil. HCl solution on dil. $AgNO_3$ sol. in sunlight. An amorphous chocolate brown powder was obtained, an analysis of which is appended.

40 gms. yielded 2 cc. of oxygen

3,4230 gms. were dried at 100° for 8 hrs. losing only 710 mgms. in weight.

This on treatment with NH_4HO gave 0,3908 gms. of Ag so that nearly $\frac{1}{6}$ of the AgCl was reduced. The ammoniacal filtrate containing dissolved AgCl was acidified with HNO_3 and the ppted AgCl weighed. This amounted to 3,0316 gms. or a total of Ag and AgCl 3,4224, a defect of only $\frac{1}{2}$ mgm. from the original weight of darkened product taken.

Here in spite of the very much greater amount of reduction, the volume of contained oxygen did not differ materially from that obtained in the dry way. Unfortunately it was found that the product obtained in this way gave indications of the presence of HCl, i.e. an acid reaction with water even after repeated washing. AgCl formed in the presence of HCl seems to retain small quantities of the acid from which it is absolutely impossible to be freed. This is an exactly similar phenomenon to the formation of lakes by $Al(OH)_3$ and the absorption of small quantities of metallic chlorides like $FeCl_3$, Hg_2Cl_2 by AgCl when it is ppted in the presence of these substances. Prolonged extraction in a Sohxlet with boiling water is useless because AgCl is itself slowly decomposed by boiling water. It was therefore impossible to show the presence of oxidized Ag in the darkened product obtained by any qualitative test. Treatment with KCl as above gave an acid reaction and the ammoniacal filtrate obtained by the action of NH_4HO on the dark powder always gave excess of chlorine. From the dry substance however slight excess of silver in the filtrate was observed.

On account of the length of time required to prepare the substance and the small amount of material with which one must necessarily work, the number of analyses made has been very small even after two years' work. Two inferences however may be drawn from the above: firstly, that the darkened product usually contains small amounts of oxygen, and secondly, that it is impossible to establish by analytical means the presence of any definite oxygen compound of silver. The crus

of the matter lies in the fact that it is impossible to distinguish between small amounts of the oxygen compound of silver and the metallic silver which is undoubtedly produced simultaneously. I have never yet prepared a sample of the darkened amorphous product from which it was not possible to extract a little silver by means of hot dil. HNO_3, and in which any finality to the process was reached. The highly reduced material prepared by precipitation contained at first a large amount of reduced silver some of which could be extracted with cold dil. HNO_3. By continually substituting fresh amounts of hot dil. HNO_3 small traces of Ag could be dissolved out at infinitum. Again by the action of some solvent for AgCl such as NH_4HO, KCl, KCN the residue obtained in every case was nothing but metallic Ag. The darkened product was found to resist some solvents better than others, thus KCl only dissolved out small quantities at a time of AgCl, but there was at the same time no point at which the action ceased.

In one experiment it was attempted to act upon AgCl crystallizing out from conc NH_4HO in the presence of sunlight. A remarkable dark crystalline substance was obtained, denser than AgCl and containing about $2\frac{1}{2}\%$ of reduced Ag. This substance was extraordinarily stable. No Ag could be dissolved out even by cold conc. HNO_3. NH_4HO acted upon it very slowly indeed. Prolonged treatment with boiling acqua regia converted into the normal chloride.

It seems almost certain from these experiments that the reduction product contains no definite compound, but belongs to the class of colloidal substances in which one of the components is dispersed through the other solid phase. Since this work was done an interesting series of papers has appeared in the *Zeit für Phys Chemie* 1912 by *Reinders*, who has prepared artificially similar photochlorides not only of silver, but also of gold by the crystallization of AgCl on the dark from conc. NH_4HO containing colloidal silver and gold. It is impossible in the limited scope of this paper to go into this very interesting work, but it appears almost conclusive from it that any of these reduction products can be obtained synthetically from colloidal silver.

It was established many years ago by Carey Lea (on the red and purple phot. of silver) that a great many coloured products may be obtained by the action of HCl on almost any partially reduced compound of silver and subsequent treatment with HNO_3. The best way of showing this is to take some Ag_2O partially reduced by the action of heat, strike it up with dil. HCl and wash them but with dil. HNO_3. A deep purple coloured product is obtained. Similar products can be obtained from a solution of AgCl ppted in the presence of hypophosphites. They seem to be formed invariably whenever AgCl is formed in the presence of dispersed silver or dispersed silver in the

presence of AgCl. Carey Lea's allotropic silver would now be classed under the heading of those little known colloidal complexes which exist in the solid state.

The two components appear to exercise a mutually protective influence on each other. This would account for the remarkable fact that the dark substance is formed in sunlight under a dil. solution of HNO_3 almost as fast as under water or in the air. Similarly the disperse phase appears to affect the continuous one, although to a lesser degree, as may be seen from the slower rate of solution of the AgCl in ammonia in the case of the darkened product.

From this point of view the necessity of assuming the existence of a hypothetical subchloride is dispensed with. The properties of this body have always been extremely vague and elusive, and adaptable just as the exigencies of the facts demanded. The other compounds on whose analogy its formula was ascribed have been proved to be illusory, such as Ag_4O and the monochlorides of Ca, Sr, and Ba.

There is no direct evidence of the existence of Ag_2Cl whatever, and Luther's work on the electrochemical potential of photochemically reduced AgCl which was supposed to have demonstrated the existence of Ag_2Cl, is now recognized to have been erroneous.

The question now remains how to account for the small quantities of oxygen present. The suggestion is put forward in this paper that the photochemical decomposition of AgCl in sunlight is attended by a partial oxidation of the very fine colloidal silver produced.

In the first place, the assumption of the existence of an oxychloride is not warranted by the experimental evidence inasmuch as the reactions observed can all be explained on the supposition that Ag_2O is present. This would account for the presence of a slight excess of silver in the ammoniacal solution obtained by the action of conc. NH_4HO on the photochloride, and it also explains the production of alkali with KCl in accordance with the reaction.

$$Ag_2O + 2\ KCl + H_2O = AgCl + 2\ KHO.$$

In a paper recently published by *Kohlschütter und Eydmann* (*Annalen Band* 398) it has been shown that oxidation of silver foil begins to take place at 270° in an atmosphere of oxygen under atmospheric pressure (*Über Bildungsformen des Silvers*): there is nothing improbable therefore in the assumption that an exothermic reaction of the sort should take place spontaneously under the influence of light, especially when the metal is in a state of such fine division. In photochloride prepared in the wet way which was also found to contain oxygen, although in smaller amounts, it is to be observed that colloidal silver has never yet been prepared containing 100% of Ag, and that there

is distinct evidence of partial hydrolysis whenever colloidal silver exists dispersed in water.

The question must however be left open as to whether Ag_2O or AgOH is necessarily associated with the coloured photo-chlorides of silver or whether they are accidently admixed as a result of the partial hydrolysis or oxidation of finely reduced silver.

The chief difficulty at the present stage of the enquiry is the preparation of colloidal silver in a state of chemical purity. Attempts will be made to prepare something of the kind by colloidic dispersion of Ag in a rarefied indifferent gas. It will then be possible to test the assumption made above that molecular or colloidal silver is capable of being spontaneously oxidized in sunlight.

13. Notes on Father Monserrate's Mongolicae Legationis Commentarius

By H. BEVERIDGE,

And the Surat Incident

Translated from the Portuguese by R. G. WHITEWAY.

Edited and Annotated by the REV. H. HOSTEN, S.J.

P. 517n. 2.—The MSS. referred to by Emerson Tennent are in the Students' Room in the British Museum and are numbered Additional 20,861 to 20,900. I got out the first volume, viz., 20,861, but it was all in Portuguese, and, though written clearly enough, I could make nothing of the manuscript. All I could see was that it contained a great deal about Malacca and Cochin, and that there were at least two references to Equebar (Akbar). The first volume, Add. 20,861, begins with the year 1580 and goes on to 1599. Some Portuguese scholar should look through the volumes.[1]

P. 518n. 1.—According to the English translation of the Apocrypha the quotation comes from I Esdras, not III Esdras.[2]

P. 519n. 1.—Father Delaunoit's suggestion that *Agarenus* comes from Hagar, the mother of Ishmael, is confirmed by the Paris edition of 1733 of Ducange. It is said there *s. v.* Agarenus: "Agareni, Saraceni, qui scilicet se existimant ortos ex Ismaelo, filio Agaris et Abrahami."[3]

P. 519n. 3.—Dhafar is now known as Mirbaṭ. See *Jahāngīr's Memoirs*, translation, II. 88n.; also the article Dhofar in Blackie's *Imperial Gazetteer*, p. 837, and Reclus, *L'Asie Antérieure*, p. 897. Dhofar is properly Ẓafr, 'victory'.

Monserrate's *Mongolicae Legationis Commentarius* appeared in *Memoirs A.S.B.* (1914), III, 513-704.

I add here a few notes to Mr. H. Beveridge's welcome annotations. [*H. Hosten, S.J.*]

[1] It is a collection of 40 vols. of despatches relating to India and once in the possession of the Marquis de Pombal. This should be invaluable for the history of the Portuguese colonies in the East. It is well known that Pombal ordered original documents, civil and ecclesiastical, of Goa to be sent to Portugal, and it is hardly likely that copies of all these papers were made at the time at Goa. How is it possible that Portugal allowed this official correspondence to fall into foreign hands?

[2] Here the Vulgate differs from the Church of England version.

[3] Cf. Psalmus 82, v. 7, for the form *Agareni*, and 1 Par. 5, vv. 10 and 20 for the form *Agarei*. Manrique, the Spaniard, uses the word Agarene for Muhammadan.

I have not found Father Monserrate's Eynan. But Blackie's *Gazetteer* gives (I. 51) Ainad or Ainand, a town of Hadramaut, 207 miles N. E. of Aden, which may be the place meant. See also Reclus (*l. c.* p. 899) and his map, which spells the place as Amid.[1]

P. 519 text.—The Arnaouts are Albanians. See the *Encycl. Brit.*, Vol. I, article 'Albania,' p. 483. I think Father Monserrate may have written Albanesium, not Allanesium.[2]

P. 529.—May not the mysterious annotator have been Tieffentaler himself ?[3]

P. 551.—The good Father is unjust to Khwāja Ṣafr's memory. He helped the Portuguese much, and can hardly be called a renegade, for I suppose he was captured and made a Mussulman in his infancy. See Whiteway's *Rise of the Portuguese Power*, p. 250, etc. Mr. Whiteway calls him Safr Aga. See also Maffei and the native histories of Gujarāt.[4]

PP. 557-58.—Bābā Kapūr is mentioned in the *Aīn Akbarī*. See Blochmann's translation, p. 539, No. 30. There is an account of him in the *Khazīna Aṣfiyā*, Vol. II, p. 433. His real name was 'Abdul Ghafūr, and he was a native of Kālpī. He was a follower of Shāh Madār. Apparently, there is an account of Bābā Kapūr in the *Akhbār-ul Akhiyār*.

P. 562.—There is an interesting reference to the elephant statues here—perhaps the earliest on record. It supports Bernier's story.[5]

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[1] I identified it with Aīnad at p. 522.

[2] I translated *Allanesium* by *Alessio* (?), the chief town of Albania. There appeared to me little doubt, however, that *Alessio* should be derived from *Allanesium*, and I felt no hesitation about Monserrate's spelling. I have read and re-read the original repeatedly, for the proofs were corrected from the original. In the end I read Monserrate's writing as easily as my own. I have now returned the MS. to the St. Paul's Cathedral Library ; but I think it unnecessary to have a look again when I have checked the text at least half a dozen times. The original of Monserrate should, I think, find an honourable place in the Victoria Memorial of Calcutta.

[3] Father Tieffentaler was probably able to speak English. He wrote French at times, but generally he wrote in Latin. Now the anonymous annotator wrote in English. See my note at p. 695 in the text about Wilford. The Rev. W. K. Firminger, Archdeacon of Calcutta, throws out a hint in *Bengal Past and Present*, 1914, April-June, p. 219, which may lead us to discover where the MS. originally was. He says that library marks similar to I.P. 46, which I could not explain in Monserrate's case, are found in other books of the St. Paul's Cathedral Library, and they are covered with strips of white paper, as was the case with Monserrate. I have had no time to investigate this matter.

[4] See also H. Beveridge's translation of the *Akbarnāma*, I. 323 *n.* 3. and errata Nos. 100, 112, 114.

[5] Monserrate mentions the elephant statue at Gwalior, the two at Agra and the two at Fatehpur Sīkri. His reference to the Agra statues is the earliest I could find. I prepared two or three years ago a long article on the different elephant statues, but could not conclude. I was because of the uncertainty of the ultimate fate of the Agra statues.

P. 563.—See Hughes' *Dict. of Islam*, p. 523*a*, about the earliest translation of the Qorān. Did the Fathers use 'the translation published at Basle in 1543 ?[1]

P. 565.—Probably, the mystagogue referred to here was Quṭbu-d-dīn of Jalesar. Cf. Blochmann, 191, and Badāyūnī II, Lowe's translation, p. 308.

P. 576.—The account of S̲h̲āh Manṣūr. He was foully murdered, because he was too honest a servant of Akbar, and tried to expose the frauds about horse-branding. He was the victim of forged letters, as Akbar found out afterwards at Kābul, when it was too late. See *Tabaqāt-i Akbarī* and Elliot's History, Vol. V, p. 426 (also *ibid.*, 423).

P. 585n. 8—*Equiso* is given in Smith's *Dictionary*, p. 371, as meaning a groom. Under *agaso* it also refers to *equiso*. The word must surely occur in large dictionaries.[2]

P. 599.—This notice of the Manikyālā Tope is very interesting and is probably the earliest notice that we have of it, either in Indian or European writers.[3]

P. 601.—Axtnagar[4] is of course Hashtnagar.

P. 603—There is an account of Qulīj K̲h̲ān, the Governor of Surat, in Blochmann, No. 42, p. 354, and a fuller one in *Maāṣiru-l-Umarā*, III. 69.

P. 613.—The legend about 'Alī Masjid is interesting.

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under the impression that the Agra statues might have been shifted to Delhi; but the pedestals in both places were shown to be too different to allow of the Agra statues' being placed at Delhi. Another conclusive clue is that an elephant statue was found some 40 years ago in a rubbish heap in the Agra Fort. I hope to return to this subject as early as possible and discuss the bewildering variety of legends centring round the riders of the elephants both at Agra and Delhi. Bernier's story applies to Delhi, not to Agra, or rather it was a repetition of Monserrate's version of the Agra stories, probably the correct one for Agra, since Monserrate lived so close to the fact commemorated.

[1] The Basle translation of 1543 was a Latin one, and Hughes' *Dict. of Islam* is silent about Portuguese translations. Father F. Goldie, *First Christian Mission to the Great Mogul*, p. 73, n. 22, says that the Fathers had a Portuguese translation of the Qorān. He quotes du Jarric, p. 507 [probably the Latin transl. of 1615]. The French edn. of Bordeaux, 1610, p. 442, speaks indeed of a Portuguese translation. Monserrate says distinctly they used a Latin translation, which he attributes to St. Bernard, but which Hughes' *Dict. of Islam* ascribes to Robert of Retina, an Englishman, and Hermann of Dalmatia, a German, the translation having been done at the request of Peter, Abbot of Clugny (1143 A.D.). The original Jesuit letters covering the same period as Monserrate contain, I think, further information about the version of the Qorān used. We shall have to discuss the point, when we publish these letters in our next fascicle of the *Memoirs*.

[2] This is a bad case of overlooking things. I now find the word in Facciolati-Forcellini which I was constantly using.

[3] The passages on the Manikyālā tope and on another beyond the Khaibar Pass (cf. p. 614) were sent to Dr. J. P. Vogel for discussion. Cf. my p. 530 *n*. 3.

[4] *X* is often pronounced *sh* in Portuguese.

P. 613, 5 ll. from foot.—Ajmere is a long way from Fatehpur.[1]

P. 614.—The tale of the Deh Ghulāmān is told in Manucci, II. 447, and IV. 439. Abul Fazl mentions the place, but does not give Manucci's legend. The good Father's etymology of Landi Kotal is wrong. I believe Landī means a stream in Pushto; but see Raverty's *Notes.*[2]

P. 618.—The sister of Akbar and Muḥd. Ḥakīm here mentioned was, I think, Bakhtu-n-nisā, the full sister of Muḥd. Ḥakīm.

P. 618.—S. Jamāl, Akbar's brother-in-law. Blochmann (p. 425) speaks of the sister as long superintendent of the Harem. But the *Maāṣiru-l-Umarā*, II. 564 (see my translation of the *Maāṣir*, p. 49) says she was Akbar's favourite wife, or at least a favourite wife. Her name was Goharu-n-nisā. See *l. c.* II, 566, in accounts of Jamāl Bakhtiyār. (Jamāl and Quṭbu-d-dīn were both notorious drunkards.)

P. 620.—The line of Horace about "*quidquid delirant reges*", is in the 1st book of the Epistles, not in the 9th.[3]

P. 623.—The statement that Partāb Singh was killed is a mistake.[4]

P. 624n. 2.—The word is *rāfiza*: a heretic.[5]

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1 No doubt; but great distances in Europe are small in India!

2 Major H. G. Raverty (*Notes on Afghanistan and Part of Baluchistan*, London, 1888) refers to Landey Khāna'h Kotal at p. 40, to the Pass of Landakaey Kotal at p. 241, and to the Lūnd or Lūndaey Khwar at pp. 244–245*n.*, in which last place he says that *Lūnd*=wet, watery, moist. Its plural form, with a masc. noun, is *lānw-dah*, and, with a fem., *landa'h* and *landey* respectively. I do not think that Raverty gives anywhere Monserrate's or Manucci's story of the Amazons in connection with Landi Khāna.

3 Right. The reference is to Lib. I, Ep. 2, v. 14.

4 I took the word *rāfizī* from Forbes' *Hindustani-English Dictionary*, p. 457, and thought that Monserrate might have had in his mind this form of the word when he coined his *Raficinus*. I do not know Persian.

5 Beale's *Orient. Biogr. Dict.* is unsatisfactory about Rānā Partāb Singh. At pp. 309 and 329 col. 2, he says that in 1614 Rānā Partāb Singh was alive, while at p. 407 (*s.v.* Udai Singh) he states that Rānā Partāb Singh died in 1595, his son Amar Singh dying in 1620. At p. 329 col. 2, Partāb Singh is made to die in 1594 and Amar Singh in 1619. Be that as it may, I am still unable to understand how Monserrate could have mentioned at all the death of Partāb Singh, since the allusion to his death occurs in Monserrate's original text of 1590-91. The Rānā, whom, as stated by Monserrate, Akbar killed with his own gun, was not Partāb Singh, but Rājā Jai Mall, whom, we know, Akbar killed with his own gun at the siege of Chitor in 1568. What makes the supposition more plausible is that the riders of the two elephant statues of Agra set up by Akbar were, according to de Laet's account at least, Rājā Jai Mall and Patta; these would be the two heroes whom, says Monserrate, Akbar killed with his gun and whose statues he set upon elephants of stone at the entrance of the Agra Fort (Cf. p. 562 or fol. 23*a*. 2). It is curious, however, that Monserrate should have replaced Jai Mall's name by that of Partāb Singh, a Rānā whom he must have himself known. There does not appear to have been any earlier Partāb

P. 625.—The statement about Gulbadan Begam and Būlsār is very interesting. The story refers to Bulsār, I think, not to Būtsār.[1] (I have written about this already to Father Hosten.)[2]

I have also received from Mr. Whiteway the official (Couto's) account of the affair of the captured young men. It seems that the Portuguese records are a blank about 1583 and that Monserrate's commentary is a welcome addition.[3]

P. 628.—Akbar considered himself as descended on the mother's side from Chingīz Khān. The *genus maternum* to which Monserrate refers is, I suppose, Bābur's mother, not Humāyūn's wife.[4]

P. 630.—Protestants worse than Muḥammadans, and *ibid.* the story of Bathsheba. Badāyūnī refers to this discussion. (Blochmann, p. 203.)

P. 630.—The remark about *maenianae*, line 4, refers to the Jharoka, or inspection window. See Blochmann, Index, p. 645, also pp. 157 and 613.

P. 635.—Is Daytan Dattia?[5]

P. 640.—A very interesting account of Akbar's personal appearance, etc.

P. 645.—Is the reference to Akbar's stepmother Ḥājī Begam?[6]

Singh, whose name might have become, as in the case of other Rājās mentioned by Portuguese historians, a mere title with which to designate several generations of Rānās. Does not, however, Monserrate use the name Partāb Singh in a generic sense for Jai Mall? We find, for instance, that in 1610 and later the Portuguese of Bengal speak of the Great Moghul as "o Equebar" (the Equebar, Akbar), though he had died in 1605.

[1] Monserrate mentions both Balsar and Butsar; Balsar at 7*b*. 4 or p. 548, and also in the index, the map and in the table of longitudes and latitudes, whereas Butsar is only in the index and at fol. 93 *a*. 3 or p. 625, where it is thrice spelt Bútzár, and twice Butsar, the etymology being given as *bhūt-sar* (devil's or idol's head) while *Balsar* is explained as meaning *Bucephala*. There can be no doubt, therefore, that Monserrate wrote Bútzár, in the text. Būtzār was near Damān (cf. p. 625).

[2] This letter must have gone astray. I cannot remember that there was any earlier correspondence on Bulsār or Būtsār.

[3] I suppose there is a blank only in the sense that Monserrate fills in some gaps in the Sūrat incident.

[4] Compare with p. 656, where Akbar's mother is called Chūlī Begam, Humāyūn's wife.

[5] I remark that Daytan does not occur in Monserrate's index, but it is written *Dayta* on my p. 537 in the list of longitudes and latitudes, and in the map Dayta is near Sūrat, while Dattia is near Gwalior S. E., and Fr. Monserrate was approaching Sūrat. Peter Mundy, who passed through Dhāitā in 1631, shows that the distance from Sūrat was 6 stages: Sūrat-Khumbāriā (3 kos)—Barnolee (10 kos)—Viārā (12 kos)—Kirka (7 kos)—Nārāyanpur (13 kos)—Dhāitā (10 kos). See Sir R. Temple's map in *Travels of Peter Mundy*, II, facing p. 39.

[6] Monserrate calls the lady Akbar's *matertera*, which means aunt on the mother's side. Stepmother is *noverca*. I think the reference is

P. 647.—I believe that the allusion to the punishment of Akbar's broker refers to the case mentioned in the *Akbarnāma*, III. 390, 391, where the execution of Jalā for rape is described. He was Akbar's broker's son and perhaps the son of Rūmī Khān, if not Rūmī Khān himself. I am not sure if Rūmī Khān came from Aleppo, and if Ḥalābī should not be read Jalābī, horse-dealer. See Gulbadan B.'s *Memoirs*, p. 71.

Monserrate's account of Timur and others of Akbar's predecessors is not valuable and might be omitted in the translation. Clavijo had better be read in the Hakluyt Society edition.[1] The last 20 or 30 pages of Monserrate might be left out of the translation.[2]

One of the valuable parts of Monserrate's book is the clear account he gives of the theological discussions, and of the reasons why Akbar did not accept Christianity. Rudolf's refusal to accede to the hypocritically proposed test of fire is creditable to his good sense. Akbar's love of truth and his real desire to get at proper views are well brought out. It was the doctrine of the Trinity that was his stumbling-block, as it is to most Muḥammadans. The Fathers, when pressed on the point, could only say that it was a mystery, and that, if they once believed that the Bible was God's Word, they must logically accept all its statements. They said also that, if a man wanted to be enlightened about Religion, he must first amend his life, and practise fasting and prayer.

I certainly think that the Commentary—with the exception of the last 20 or 30 pages—should be translated and annotated.[3]

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to the same lady as is mentioned at p. 625, *i.e.*, Akbar's *amita* or paternal aunt. In the index, s. v. *amita*, Monserrate refers us to the passage where he wrote *matertera* and he omits referring to the passage where he wrote *amita*. Beale's *Orient. Biogr. Dict.* describes Gulbadan Begam as Humāyūn's sister and Akbar's aunt. This would tally with the use of the word *amita*, not with *matertera*.

See Blochmann I, 198, on her return from Mecca.

Mr. H. Beveridge adds in his letter to me (July 30th, 1914): "According to Monserrate, it was Gulbadan Begam, Akbar's aunt, who gave the Portuguese Bulsār, but she must have had authority from Akbar to do so." Very likely. I remark again that Monserrate writes Būtsār.

[1] It is one of the poorest productions of the Hakluyt Society. We consulted it repeatedly and found it of little use. Markham has turned out so much better work in his later books.

[2] We agree, but let the annotator secure for his notes some valuable passages in those 20 or 30 pages.

[3] The first 100 pages of the MS. are already translated and we have received promise of help for the remainder. But the work of the translator is mere child's play compared with that of the annotator. It is extremely kind of Mr. H. Beveridge, whose knowledge of the period is unique, to lighten our burden with these notes. Let us express the hope that others will follow his example, and that they will record their remarks by preference in the Journal of the A.S.B. To scatter them is to render them inaccessible. The Commentary must be annotated after or simultaneously with the Jesuit letters covering the same period.

The Surat Incident.[1]

Translated from Diogo de Couto, Decada X, Liv. II, C. 4.[2]

By R. G. Whiteway.

Of what happened to the "brave fleet" at Surrate with a ship of Caliche Mahamed: and how the Mogors attacked some of our soldiers: and how Diogo Lopes Coutinho burned the Village of the Abyssinians, and of other matters.

[P. 169] Diogo Lopes Coutinho, the Captain of the "brave fleet",[3] left the Goa bar, as we said at the end of Ch. I of Book II, and sailed North to blockade the Surrate river and prevent, as he was ordered, the starting of the ship of Caliche Mahamede, the Captain of that Fort, for he intended to send them without a Permit. The Viceroy had heard that, when this Caliche was at Hecbar's Court and they were speaking before him of the Permits, which, as we have told, he [Akbar] had sent to ask the Viceroy to grant for his ship,[4] Caliche, wishing to gain favour with him, said that he too would send a ship, and that his Permit was here, [P. 170] pointing to the handle of the sword he bore at his waist. After he had said this before Hecbar, he wrote to Surrate and ordered that his ship for Mecca should be so well provided that, if she met the whole Portuguese fleet, they could not stop her. This was done by his brother who was then Captain. He arranged for sufficient artillery, munitions and crew to enable her to defend herself. His Damão letters told the Viceroy of all this, and it was a state necessity to disabuse this Caliche of the idea that he could navigate the seas without a Permit; he therefore sent Diogo Lopes to Surrate to watch that ship with the whole Fleet and account for her if she left the harbour without a Permit. This Caliche was by caste a Chacuthou,[5] of poor parents; as a boy, he learned his letters in company with Hecbar and became a learned man, and, as he had from his childhood been near the King, he was a great favourite and was employed in great affairs; he was prudent and of good counsel, so that he was advanced beyond the very princes[6] and had sufficient authority [P. 171] to place his brothers

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Mr. H. Beveridge's notes on Monserrate's Ceynandum or Sirhind, which I received after the above, deserve to be treated apart.

[1] Cf. Monserrate, *Op. cit.*, pp. 625-626.—Here also I add a few notes. Some words have dropped out in the translation. I restore them. [*H. Hosten, S.J.*]

[2] I insert the pagination of the Lisbon edn., 1778, Tom. VI, Pt. I.

[3] *Armada dos Aventureiros.*

[4] This would be in 1575.—*R. G. W.*

[5] *Chaghatai.—H. B.*

[6] *Veio a ser diante dello dos principaes*, not *principes*: his advice would be preferred to that of the chief men in the kingdom.

in important situations in the Court, each being a Captain of 1000 or 2000 horse. The eldest was Chancalono, the next Mahamede Soltão, the third Jancalischou, who is blind of one eye, a great soldier, and very free-handed. Of all three Caliche was the youngest; at present he would be about 70; and, when Hecbar conquered Cambay, he was given the Fort of Surrate, as was told in the first Decade. From this and other properties he had acquired, he had amassed, so one of his household told me, more than 20 millions of gold in precious stones and specie. He is now in Laor, where the Court is, as Comptroller of Revenue of the whole Kingdom. To return to our Fleet, pursuing its way, it fell in at night between Bombar and Bacar [1] with a Malavar paráo which, seeing the Fleet, used its oars to get away as soon as possible. Some of our ships followed. Belchior Jorge Barata was up first and plied it with musketry for some time until D. Manoel de Menezes arrived. They boarded her almost at the same time [P. 172] and put all the Moors to the sword in a very short time. They took the paráo to Bacá [1] with all its lading.

Diogo Lopes Coutinho collected his vessels and passed on to Surrate, where, close to the bar, was anchored a fine ship of about 500 tons burden, with her yards square ready for sea. Diogo Lopes surrounded her with his ships and enquired to whom she belonged and where bound; the reply from on board was that she was Hecbar's and was going to load at Goga with the Viceroy's Permit, which they showed: Diogo Lopes Coutinho signed it and told them to sail on in peace, which they did, starting for Goga. Our Fleet entered the river, and in the Milk-women's Channel (? *Canal das Leiteiras*) saw Caliche's vessel. It too was a very fine one and was close to the steep bank of the stream; it stood high with its keel on the ground, and a great number of lances were displayed in it. Many Moors were busy in it, as men preparing to fight. Diogo Lopes hailed her, and asked to whom she belonged and whither bound; [P. 173] they replied Caliche and bound for Meca, but awaiting the Viceroy's Permit. He replied good, but without it they should not cross the bar. As it was not ready to start, and the high tides were past, without which the ship could not get out, the Commander determined to patrol the bay and seek for paráos. He crossed to Goga, and went along the coast to Dio, [2] where he revictualled. As by then the term of the Moon for fresh high tides was approaching, he returned to Surrate to watch the ship. Entering the river and selecting a spot whence he could see everything, he wrote to the Viceroy and asked for more vessels, for the ship was large and powerful, and it would be a disgrace if she sailed away, because the Fleet was too

[1] Bombar and Bacar (Bacá) not identified.

[2] Diu.

weak to stop her. While they were thus in the river, one day, when the Fleet lay on the Reynol[1] side with its beaks on shore, a band of 20 soldiers started off fowling with their matchlocks, an act strictly forbidden by the Commander, who knew the nature of the Mogors. When they had got a short distance, [P. 174] some 50 horsemen attacked them so suddenly that they could not retreat, and in the first brush they secured some 5 or 6 of them.[2] The others formed into one body, keeping aim with their matchlocks, and fighting courageously retreated to a hillock, where they defended themselves well, bowling over some with their shot, so that the others did not dare approach. When the news reached the Commander, he was greatly annoyed and landed his whole force under arms. He sent his brother João Rodrigues Coutinho with a Company of soldiers, he remaining with the rest where he could see what happened. When our men who were fighting the Mogors saw the relief force coming, they attacked their assailants and put them to flight; and, when João Rodrigues Coutinho came up, they were stripping the dead, even to their boots, for all wear boots. He collected them and brought them back to the Commander who felt the occurrence greatly and was annoyed that this disaster had happened as it were under his very eyes, owing to the bad discipline of his men, who in matters of this kind in this country have no care even of their own lives, putting them at any moment in peril [P. 175] for a passing whim. Included in the spoil the soldiers brought a lance with a silver grip which had belonged to the Portuguese.

Diogo Lopes did not forget this occurrence, but kept it in his mind to revenge, and began to ponder on ways to do it. Meanwhile, he kept a strict watch on the Fleet, and allowed no soldier to land on any pretext. About this time arrived the three ships which Count D. Francisco Mascarenhas had had prepared in Chaul, when he received the message of Diogo Lopes Coutinho. The Captains of them were Ruy Mendes and Ruy Dias de Sousa, brothers. The name of the third we never learned. This was a considerable reinforcement for the Fleet, as it brought more than 100 good and choice soldiers. Diogo Lopes Coutinho determined to revenge the death of his soldiers, and ordered his Captains to attack the Abyssinian Village[3] secretly. This was a populous place, half a league up the river. The attack was made one morning early. It was entered and burned, and the inhabitants made for Surrate. Caliche's brother considered this a

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[1] Rānder.
[2] *Alcançarem* is the word used. I have translated "secured"; the meaning is "to reach." It is rather a vague word.—*R. G. W.*
[3] *Aldea dos Abexins.*

great affront and insult to him, for these Mogors [P. 176] are all a proud and arrogant race. He hurriedly collected 500 horse, many footmen, some elephants and some field artillery, and reached the village as our men were embarking, having completed what they came to do. When near the shore, our ships being afloat, they fired some bombard shots, to which our foists replied with another volley which stretched some of them on the plain. Unluckily in unmooring, the boats of D. Francisco d'Essa and D. Francisco de Menezes fell foul of each other and could not clear. The Mogors, seeing this, converged on them such a heavy fire that they wounded most of the crews; among others D. Francisco was struck in the right arm, which crippled him, and two soldiers were killed. Our men in the boats worked to clear the foul, and plied their matchlocks meanwhile to drive off the enemy, among whom they caused considerable loss. The Commander of the Mogors was on the river bank urging some elephants down to seize the boats with their trunks and bring them nearer in shore to ground them as the tide was falling. [P. 177] D. Francisco d'Essa and the other soldiers strove and fought their hardest, but the other boats could not help owing to the force of the current running out. All, however, worked so hard that they got free away, nearly all wounded, and so wearied that they could do nothing more. The danger over, the wounded were attended to, and as the wound of D. Francisco de Menezes was dangerous, the Commander sent him in a ship to Damão with all the other wounded and directed that D. Francisco de Menezes, son of D. Pedro the Red, should return with it as Captain. Diogo Lopes felt this disaster deeply, as the business had been successfully carried through, with the exception of the boats fouling.

This done, they returned to watch the ships. As water was running short, they went for it to a village above the Abyssinian one, where there was a watering place, about two falcon shots inland. Landing his men on the shore, the Commander sent his brother João Rodrigues Coutinho with a company of matchlock-men on guard for the sailors and lads who carried [P. 178.] the watering vessels, while he with the rest halted on the plain in sight of the ships and of the watering party. As soon as the villagers saw our men, they raised several smokes, which was the signal agreed on to show those in the Fortress that our men had landed. The Captain of Surrate mounted with several men and, taking some elephants, marched to the spot, but our men had had leisure to finish the watering. When João Rodrigues Coutinho heard that the Surrate men were advancing, he sent the sailors in front and he remained in the rear to see who was coming, and halted in a sort of ambuscade in a Village to see if the

Mogors advanced negligently into the Village and gave him a chance of striking a blow. When the Surrate Captain neared the village, he did not dare to enter for fear of our men, but remained outside drawing up his men in a half moon to surround the Village. When João Rodrigues Coutinho saw this, he fired the Village, and marching out in a body started for the shore. The Mogors advanced, firing showers of arrows and projectiles, but ours, facing their foes [P. 179] and playing on them with their matchlocks, marched in good order to the shore, where they joined the Commander, and all embarked in very good order, the falcons of the foists keeping the enemy at a distance and causing considerable loss to them. When all were safely on board and they were making for the ships and [coming] near the Commander's, it was struck by a falcon shot[1] which hit one Manoel Freire de Andrade, a fidalgo, who was sitting on a plank, and, falling into the sea, he was never seen again, at which the Commander was very sad. As the tides were ended in the interval, before the next he set sail for Dio and searched the bay for pirates. After refreshing at that Fortress,[2] he returned to watch the ship.

Dec. X, L. 2, C. 5, pp. 180-187.

Summary.—To draw off the Portuguese ships from Sūrat and give the ship time to sail, the Muhammadans marched against Damão. This move was successful in drawing off the Portuguese ships. This was in March, 1582.

Fernão de Miranda was in Damão when the siege began, and in August 1582 was entrusted by the Viceroy with some ships to cruise round Diu and Damão. He had orders to stop all ships, whether with permit or without, on the ground that there was war.[3]

[1] My edition has: When our men were safely on board, and the ship of the Commander was getting away, it was struck by a falcon shot.—*H. H.*

[2] Diu.

[3] The story of the *death* of the *nine* young men caught during the fowling expedition is not in de Couto, but in Monserrate; de Couto says only that five or six young men were caught. They were taken to Sūrat and offered their life against apostasy. Their gallant young leader, Duarte Pereyra de Lacerda, spurned a proposal unworthy of a Christian. "Where Edward goes, we will follow," said the rest. They died as Christian heroes and their heads were taken to Fatehpur Sīkri.—*H. H.*

NOTES ON FATHER MONSERRATE'S MONGOLICAE LEGATIONIS COMMENTARIUS.

Second Instalment.

By H. Beveridge and the Rev. H. Hosten, S.J.

P. 632.—The passage in the Qorān quoted by the Fathers is to be found in Sūra 59, verse 21 (the Chapter of Emigration): "If we had sent down this Koran on a mountain, thou wouldest certainly have seen the same humble itself, and cleave in sunder for fear of God." The Fathers asked whether this referred to the particular Qorān brought down by Gabriel or to subsequent copies.

P. 651.—The marginal note: "Help from Bairām Khān" is wrong. The person meant is Ṭahmāsp, the King of Persia. The *imperator* whom Ṭahmāsp appointed to command his auxiliary forces was not Bairām, but Budāgh Khān, who was the tutor of Ṭahmāsp's infant son Murād. This son was a mere child, and was used as a sort of mascot or bringer of luck. He soon died, and then Humāyūn took Qandahār from the Persians. See my translation of *Akbarnāma*, vol. I, pp. 471 *et seq.* I do not feel sure of the exact meaning of the words of p. 651 of Monserrate, line 7, "ut sibi nomen daret." What the sentence seems to mean is that the Persian King made over his troops to Humāyūn and appointed him sole commander on condition that Humāyūn should take his name and wear the Shī'a cap. These conditions were accepted by Humāyūn. But I confess I cannot understand the passage. If, by any chance, Father Monserrate means that Bairām Khān was the *imperator* of the auxiliary forces, he is wrong. He goes on to call Bairām a Persian, which he was not, and he wrongly says that Bairām intrigued with Muḥammad Ḥakīm, Humāyūn's other son, and wanted to make him King. This is quite incorrect.[1]

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[1] I agree that the marginal note should have been rather: "help from Tahmāsp" Probably, when I placed that note at that height of the page, rather than a line or two lower, my chief preoccupation was to insist on Monserrate's identifying the Persian of line 9 (from top) with the Persian of line 12 (from top). Clearly, in the latter case there is question of Bairām Khān, and Bairām Khān is, no doubt, in Monserrate's mind the "Persian" who led Humāyūn's troops and kept the Pathāns in check during Humāyūn's lifetime. I understood and still understand, on the strength of the Latin and irrespective of the objective facts, that Tahmāsp gave Humāyūn the use of his "legions" under one commander, and this sole commander would have been the "Persian" Bairām Khān, the same who with Tahmāsp's "legions" defeated the Pathāns.

P. 672.—I doubt if Father Monserrate mentions the death of 'Abdullah Khān's Sikandar. Leaving out of the question the improbability that he would refer to an occurrence of 1597 (it really was January 1598 when the great 'Abdullah died), since he completed his Commentary in 1590, it seems to me that the good Father's history is at this place so hopelessly wrong and confused that we cannot draw any satisfactory conclusion from his statements.

He begins by referring to the Khān-khānān who, he says, behaved treacherously to his master Bābur. Comparing this with p. 650, it seems that Father Monserrate is referring to Akbar's minister Bairām Khān, and is telling a totally absurd and erroneous story. Neither Bairām Khān nor any other Khān-khānān was treacherous to Bābur, and Bābur lost Samarkand to the Uzbegs. He left no servant in charge there. Nor had any Khān-khānān, a son named Bābu (or Bābur) Sulṭān, or a grandson named Bosacora. I fancy Bosacora may be a corruption of Baisankhor or of the Borak who died early in 'Abdullah Khān's reign. But, the whole account is mythical. 'Abdullah Khān never fought with Akbar in Afghānistān, or anywhere else. He was Akbar's contemporary, but they never fought. If the *dum vixit* refer to him, it is curious that the Father did not know that Murād of Turkey died some two years before 'Abdullah. My idea is that, if the Father meant a real person at all, he means either an earlier 'Abdullah than the great 'Abdullah, or he means Ubaid Ullah, the nephew of Shaibānī, who died in 1539.

But I give up the paragraph as a hopeless muddle, and as no evidence that it refers to Akbar's contemporary 'Abdullah Khān, the ruler of Turān.[1]

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and with the same "legions" kept the Pathāns in check as long as Humāyūn lived. The conditions on which Tahmāsp proferred his help to Humāyūn were that Humāyūn should recognize his supremacy (*ut sibi nomen daret*) and wear the Shi'a cap, conditions to which the helpless Humāyūn submitted. I do not suppose that Monserrate confused Bairām Khān, the Turk and Akbar's Vizir, with Bairām, Tahmāsp's brother. (Cf. de Laet, *De Imperio Magni Mogolis*, pp. 169-170). It is simpler to suppose that Monserrate was badly informed about Bairām Khān's nationality and much of his history. Much of what he noted must rest on simple hearsay.—*H. H.*

[1] At first Monserrate wrote: "'Abdullah Khān sides with Amurath [Murād], the King *of the Turks, my master*, and *is* hostile to the King of Persia." (Cf. p. 672 or fol. 138*a*. 1.) This he wrote in 1590-91, while a captive in Arabia. Later on, he corrected or changed it to: "'Abdullah Khān sided with Amurath, King of the Turks, *as long as he lived*, and was hostile to the King of Persia."

Now, whether we refer "as long as he lived" to Murād or to 'Abdullah Khān, it makes little difference, if 'Abdullah Khān died in January 1598, and Murād some two years before. 'Abdullah Khān would still be the great 'Abdullah Khān. Anyway, Fr. Monserrate would have corrected the sentence after his return to India. We may remark that the 1st sentence of the paragraph has *gerat*, not *gesserit*. I must suppose that

[After seeing my explanations (note 1, p. 14) Mr. H. Beveridge wrote on November 12th, 1914:] "I accept your view that 'Abdullah Khān is the great 'Abdullah Khān. I also agree with you that the Khān-khānān who behaved treacherously to Bābur cannot be Bairām Khān, unless Father Monserrate's account is altogether confused and wrong. Indeed, the good Father is very much out in his history. His Khān-khānān, who deceived Bābur, cannot be Bairām, nor indeed can he be any real person at all, for the whole story is a myth. Bābur fled from Samarkand, because he could not help himself, and did not appoint his Master of the Horse or anybody else to keep it for him."

P. 672.—In an earlier paragraph of p. 672 Monserrate speaks of 'Umar Shaikh's having been succeeded by a certain Khān Mīrzā. This also is quite incorrect.[1]

Fr. Monserrate forgot to change this present to a perfect, which he did in the sentence a little lower. Monserrate speaks of the great 'Abdullah in his *Account of Akbar* (cf. *J.A.S.B.*, 1912, pp. 190, 191 *n.* 4).

As for the Khān-khānān who behaved treacherously towards Bābur (p. 650), I do not see that Monserrate alludes to Bairām Khān. See Index, s. v. Beyramcanus. Bairām Khān is referred to only on fol. 117*b*. 4, and 118*a*. 1, 2, *i.e.*, p. 651, where notice his name in the right margin. Of him it is said only that Humāyūn "Persae virtute, qui legiones ducebat, omnia coercuit."—"At Persa . . . . . ," where Monserrate speaks of Bairām Khān's treachery to Akbar.

The "Cancanus" of pp. 650 and 672 is anonymous, and must be a different person. His son (p. 672) was Babusultanus; his grandson was Bosacora, whoever they were.—*H. H.*

[1] About Khān Mīrzā's succeeding 'Umar Shaikh (cf. p. 672 or fo. 137*b*., 4, and especially p. 673, *n.* 4), there is a mistake in Monserrate, but there are curious mistakes as well in some of the royal seals.

A seal published and interpreted by Jivanji Jamshedji Modi in *The Parsees at the Court of Akbar* (Bombay, Bombay Education Society's Press, Byculla, 1903, pp. 92, 107) gives at the top of the seal Tīmūr; then proceeding from left to right, down and up the rim of the seal, we have the names of: 2. Mīrān Shāh, 3. Md. Mīrzā, 4. Abū Sa'īd, 5. 'Umar Shaikh, 6. Bābur, 7. Humāyūn, 8. Akbar (in the centre). This agrees with Blochmann's list in *Aīn Akbarī*, I, table at end of volume and with a seal in the Rev. Edw. Terry, *A Voyage to East India*, London, 1777, pp. 348-49, and plate before p. 347.

But, we may compare this with a seal of Aurangzeb's in Valentyn's *Oud en Nieuw Oost-Indien*, 4de Deel, 2de Stuk, p. 165) where we find 12 names, with Tīmūr and Aurangzeb included. Proceeding as above, we find: 1. Tīmūr (at the top), 2. Mīrān Shāh, 3. Mīrzā Sa'īd, 4. Pīr Muhammad, 5. Abū Sa'īd, 6. Shaikh 'Umar, 7. Bābur, 8. Shāh Jahān, 9. Jahāngīr, 10. Akbar, 11. Humāyūn, 12. Aurangzeb (in the centre). Valentyn discourses on the peculiarities of the seal. Another seal of Aurangzeb in Manucci, *Storia do Mogor*, II. 389, places Aurangzeb in the centre as 11th King, Tīmūr being included. The order is: 1. Tīmūr (top), 2. Mīrān Shāh, 3. Abū Sa'īd, 4. Shaikh Mīr, 5. Mahmūd, 6. Babūr, 7. Humāyūn, 8. Akbar, 9. Jahāngīr, 10. Shah Jahān, 11. Aurangzeb (in the centre). Compare with Tavernier (Ball's edn.), I, 323.

Monserrate proposes the following genealogy up to Akbar (p. 672 and p. 673 *n.* 4, 1st sentence): 1. Tīmūr, 2. Mīrān Shāh, 3. Abū Sa'īd, 4. 'Umar Shaikh, 5. Khān Mīrzā, 6. Bābur, 7. Humāyūn, 8. Akbar. H.

[In a later note (Nov. 12th, 1914) Mr. H. Beveridge returns to Shāh Mansūr's alleged treachery and execution. He quotes first Abul Fazl's long account and comments very pointedly on it and on Monserrate's version of the story at p. 576.]

The death of Khwāja Shāh Manṣūr the Dīwān, (Akbarnâma, III, p. 342).

"Sikandar Zul Qarnīn [Alexander the Great] used always to say to his courtiers :—

"The companions and jesters are one class. Their business is nothing but to amuse and tell humorous stories, though they may not be true. Their aim is to be brilliant and to feed the lamp of joy with oil. By pleasing quips addressed to the entourage they add to cheerfulness and by every device adorn the bride of joy. The pillars of empire and the grandees of the court are like hands and arms and are of a different order. Their duty is to administer medicine for the troubles of the world, to give opiates to the broken-hearted, and to apply plasters to the old sores of the Age. They say what may calm the confusions of the time, and may unravel perplexities, and may soothe the world, and produce the happiness which is the ally of security. And if there be no one to purchase from them these things, they maintain silence and meditate good thoughts. Disaster to the State generally results from these two classes of men abandoning their proper work. Moreover, Alexander often said to his officers : "Whoever in order to please me removes his foot from the highway of Truth, and lets fall the reins of right counsel, and seeks to promote my prosperity by oppressing the peasantry and the soldiers, and to enrich the treasury by improper methods, shall assuredly soon forfeit my realm-cherishing regard, and suffer condign punishment.''

The case of the Khwāja was at this time a fresh instance of this. He was always, out of ostentation and rapaciousness, making meticulous inquisitions into the financial matters of his

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follows the same order in his *Account of Akbar*, *J.A.S.B.*, Vol. 8, No. 5, 1912, p. 190, where see my note 1.

At p. 673, *n.* 4, 2nd sentence, Monserrate says that a *Tīmūrnāma* has: 1. Tīmūr, 2. 'Umar Shaikh, 3. Abū Sa'īd, 4. Bābur, 5. Humāyūn, 6. Akbar, whereupon he remarks that Nos. 2 and 3 of the former list are here inverted and that Mīrān Shāh and Khān Mīrzā are left out.

Fr Monserrate is wrong in so far as he places Khān Mīrzā after, instead of before, 'Umar Shaikh. And yet he stated (p. 67?, *n.* 4) that he had received his information from the instructors of Akbar's sons, Princes Salīm and Murād. How is the mistake to be accounted for ?—*H. H.*

After seeing the above note, Mr. H. B. writes (8 Sept. 1915): "I do not think that Monserrate's mistake lies in his placing Khān Mīrzā after 'Umar Shaikh, instead of before him. His mistake is in putting him in juxtaposition with 'Umar Shaikh. There was a Khān Mīrzā who was a son of Sultān Mahmūd of Samarkand, and he was Bābur's cousin and came after him, but not immediately after. He was a contemporary of Bābur and grandson of Shāh Begam of Badakhshān."

department. and was overstrict. Sympathy for the public servants never touched his heart. His one idea was to magnify his own office, and to promote his own importance by plausible but dishonest suggestions. He did not know that two days' cheating could not be lasting, and that a flaming torch could not endure. Before this, some orders in the handwriting of Mīrzā Hakīm's Secretary were found among the belongings of Shadmān, who had been killed. Kuar Mān Singh sent them to court. One of these was addressed to the Khwāja, and its purport was that his expressions of loyalty and good intentions had been received. The wise prince [Akbar] regarded this as the concoction of some evil-disposed persons, and did not show it to the Khwāja. Near Sonpat Mulk Mānī, one of the Mīrzā's old companions, arrived at the camp with his family and goods. The rumour was that he had been sent to pretend that he had been ill-treated, and in order that he might practise trickery. and angle for the simple-minded. Out of forethought and caution—which are the mainstay of empire—he was sent adrift. Just at that time many biassed expressions of the Khwāja's came to light, and the dust of confusion rose high. The times too were critical, and there was a fresh uproar. His Majesty sent for him in private and had the letter read to him. As his star was declining, his replies added to the suspicions against him. H.M. ceased to hesitate (?) and his acuteness came into play. On the 19th Mulk 'Alī, the Kotwāl (Provost Marshal) of the camp, produced several letters, and the evil thoughts of the Khwāja were again made manifest. These writings showed that the Khwāja's soldiers at Fīrūzpūr, which was in his fief, had expressed loyalty to the Mīrzā and would join him shortly. H.M.'s anger burst forth, and an order was given that, if the Khwāja would engage to produce the men and give satisfactory security, he should continue to remain in custody, otherwise he should be put to death, as the punishment of short-sighted persons was advantageous. The Khwāja made injudicious replies, and he could not give security. H.M., out of kindness and recognition of his (former) services, ordered that if Khwāja Sulaimān, who was related to him, and had a brotherly connection with him, would be his security, it would be accepted. That heartless coward refused, being afraid for his own life. Inasmuch as the Age was full of envious people, and the times were critical, and the grandees were hunting for his life, and intent upon plots, the order for capital punishment was of necessity carried out. The servants being bound to the work hung him on a tree near Kot Kachwāha. From the desire of self-preservation and from inconsideration, Turk and Tājīk were delighted. There was great joy in the camp. It is commonly the case that envious people and those who are self-interested come to such an end (?). Punishment was awarded to selfishness and the oppression of the weak.

Verse.

Be not severe in the world's work,
For every severe act has a severe punishment;
Beware of the grief of the lowly;
Fear the revenge of Time.

He was a make-bate, and had not sound sense. He wrecked men's houses in order to aggrandize his own wilderness. For the sake of his own comfort he destroyed the support of many poor persons. He had not studied the Age, and did not distinguish beween the times for leniency and severity. But there were few equal to him in acuteness and the art of writing state-papers, and in plausibility. If he had had some affection for the divine court, and a little loyalty for the Sovereign of the world, and some consideration for the public and a little absence of cupidity and of mischievousness, he would never have incurred the Shāhinshāh's displeasure, and never have been caught by that vice-general of Divine Wrath. That Appreciator of merit frequently uttered with his pearling tongue that the market of finance had gone flat since that day, and that the department of accounts had gone out of hand. He appointed Qulīj Khān to act as Vizier, and ordered that Zain Khān Kokaltāsh and Hakīm Abul Fath should also be in attendance at the Vizierate, and should help to carry on the work.

Note.

Abul Fazl's reference to Alexander the Great does not seem much to the point, and the writer is even more than ordinarily obscure and grandiloquent. Reading between the lines one can see that Abul Fazl did not believe in Shāh Mansūr's treachery. But he is not honest enough to say so, and covers up the story with a cloud of words. As Akbar could not read or write, he was quite unable to judge whether the letters were genuine or were forged. He was afterwards convinced that they were forged, and this is so stated by Nizāmu-d-dīn and Badāyūnī, but Abul Fazl disingenuously conceals the fact. We know that Faizī was wicked enough to write a quatrain rejoicing in Shāh Mansūr's execution. Father Monserrate tells us that it was Abul Fazl who personally carried out Akbar's orders for the execution, but Abul Fazl suppresses all this. Father Monserrate and his fellow Jesuits evidently disliked Shāh Mansūr on account of his being a zealous Shīa, and Father Monserrate gives a very prejudiced account of Shāh Mansūr. It does not seem to have struck him that, if Shāh Mansūr were a traitor, he would not have endeavoured to get Akbar well supplied with horses and would not have incurred the enmity of the Amīrs by doing this. Father Monserrate did not accompany Akbar as far as the capital of

Afghānistān, and so may not have heard that Akbar discovered that the letters were forgeries.

Elliot, vol. V, and Badāyūnī (Lowe's translation of vol. II) should be consulted. See also Count von Noer's *Akbar.*

There is a good and fair account of Khwāja Shah Manṣūr in the *Maāṣiru-l-Umarā*, vol. I, p. 653. It seems likely from what Abul Faẓl says that Rājah Todar Mal, who was Shāh Manṣūr's rival, had a hand in the intrigues that led to his death.

Shāh Manṣūr, as a Persian and a stranger, had few friends and probably he was wanting in bowels of compassion, but he was only a too zealous servant of his master. Akbar must have felt afterwards, that, in spite of the silly eulogies of Abul Faẓl, it was a disadvantage for a ruler in those days to be ignorant of reading and writing, and that his time might have been better spent than in discussing theological questions with Feringhi priests.[1]

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[1] It is quite likely that Father Monserrate's information about Shāh Manṣūr came from Abul Faẓl himself. The Jesuits had been very intimate with Abul Faẓl and his father at the Court of Fatehpur Sīkri. It was Abul Faẓl who taught the Fathers Persian, and helped them in their study and refutation of the Qorān. We should expect that on the journey to Kābul Monserrate kept close to Abul Faẓl's company. As my learned friend appropriately observes, Monserrate was not in Kābul when Akbar was satisfied that Shāh Manṣūr's guilt was a fiction supported by forgery, and, as both Akbar and Abul Faẓl cannot but have been aware that Monserrate kept a diary (indeed, Akbar was quite proud at the idea that Monserrate would be the means of making known in Europe his prowesses in Afghānistān, cf. p. 619 or fol. 87*b*. 2), it is improbable that they confessed their blunder to him. "Shāh Manṣūr's fate and Akbar's conduct to him," Mr. H. B. moralises, "are striking instances of the danger of that summary Eastern justice which some besotted people so much admire." If Monserrate's account is one-sided, it must be because he knew no better. I have often thought that Monserrate's generally faulty etymology of place-names must be laid at the door of Abul Fazl and the wiseacres of his ilk.—*H. H.*

14. Portuguese Losses in the Indian Seas (1629-1636).[1]

By F. Cotta.

Communicated by the Rev. Fr. H. Hosten, S.J.

The recent exploits of the "Emden" in our Eastern waters give some sort of actuality to a catalogue of the losses of the Portuguese in the Indian Seas between 1629 and 1636. Their worst enemies were the Dutch, who inflicted the fatal blow on Portuguese enterprise. By adding up the actual figures given in the list, the totals work out as follows: 1499 men lost, 155 ships destroyed or captured, and over 7,500,000 xerafins[2] lost. The casualties in men must have been much more considerable, as in many cases, when the total loss of a ship is recorded, no mention is made of the crew. The compilation of the monetary losses also does not appear to be very full, as Fr. Fernaō de Queirós, S.J., in his Life of Bro. Pedro de Basto, estimates at 30 millions the losses which the Portuguese suffered during the period we speak of at the hands of the Dutch, leaving alone the profits of which they deprived the Lusitanians by obstructing the free trade of the Southern Seas. The loss sustained at the fall of Huglī in 1632, *viz.* 1,800,000 xerafins according to our catalogue, appears also to fall below the real value. In one ship alone they lost in the Huglī 300,000 tangas[3] or rupees of private property, and the chest of the *Casa da misericordia*, which was worth 80,000 tangas.[4]

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193. So it was the many Captains and Governors, who either blinded by their ambition or tempted by the devil to counteract the holy zeal of the Princes,[5] forgot the chief and first aim,[6] that were the cause of these calumnies[7] and of the [P. 334.

[1] From *Historia da Fundaçao do Real Convento de Santa Monica da Cidade de Goa* . . . por Fr. Agostinho de Santa Maria. Lisboa. Antonio Pedroso Galram, 1699, pp. 334-343. This is a rare book, of which the Goethals' Indian Library in St. Xavier's College, Calcutta, possesses a copy.

[2] This coin, for a long time the standard unit of Goan currency, has suffered many variations in value, and in the last century it was worth only about 8*d*. At the time when the losses took place, however, it was equal to about 300 Portuguese *reis*, or about 1*s*. 6*d*. Cf. *Historia da Fundaçao do Real Convento de Santa Monica da Cidade du Goa*, p. 259, para. 79; and *Hobson-Jobson*, s. v. Xerafin.

[3] Tanga=Rupee, 1630. Cf. *Itinerario de las Missiones Orientales* by Frei Sebastian Manrique, p. 59, col. II.

[4] Cf. *Bengal: Past and Present*, Jan.-March, 1915, p. 44.

[5] The Portuguese Kings.

[6] The Propagation of the Faith.

[7] The calumnies of many hostile authors, such as Hieronymo Benso

ruin of our Empire.[1] And in order that one may gauge their real extent, I will now, after having referred to them generally, record here what a zealous and inquisitive Minister [of State] of Goa observed and wrote about the great losses and set-backs this State sustained from the year 1629 to the year 1636. From this account it will be seen that, owing to the want of piety and due respect to things Divine, the State was weakened, and public weal was impaired to the great detriment of the Portuguese glory and of the Lusitanian valour, which formerly, when ambition was not so pronounced, was the object of universal terror and admiration and reduced to vassalage the greatest Princes of the world.

A summary of the losses which the East India State suffered in the time of the Viceroy D. Miguel de Noronha, Count of Linhares, who governed for over six years from the 21st October, 1629, *to the 8th December*, 1635.

194. The Count of Linhares, as Viceroy, left Portugal for India in April 1629, with a fleet of three cargo-boats and six galleons. Two of the latter were lost: one, captained by Vicente Leytaõ de Quadros, sank off the Cape of Good Hope, and from the other, under Francisco de Sousa de Castro, only a few persons were saved. The other four galleons rotted away useless at Panelim.[2] One of the three cargo-boats sank off the Cape of Good Hope, the second reached Portugal after six months with the whole cargo water-damaged, and only the boat
[P. 335]. "Sacramento" reached the Kingdom safe. The loss in all this amounted to three hundred thousand xerafins.

195. The Malavares (Malabarese) took the whole of the Fleet of the North, commanded by the Captain-in-chief Ruy Lourenço

(Hist. Nov. Orb., Cent 2, c. 90, Tom. I, p. 959), Trajano Bocalino and Honorato Fascitello, who wrote that the Portuguese in their discoveries and conquests were moved less by the love of their holy religion, than by the *auri sacra fames*.

[1] The nuns of the Convent of Santa Monica, whose cause the author advocates, were at this time being severely persecuted by the Government. A decree had come from the King limiting their numbers, restricting them in the acquisition of landed property, reducing their dowries, forbidding them to receive inheritances, and subjecting them to other vexatious disabilities. And, as if these conditions were not crippling enough, the civic authorities, backed by the Viceroy, sought to interfere in the administration of the Convent. The nuns, who would loyally submit to the orders of the King, persistently resisted any intrusion of the Municipality, suffering thereby many hardships and privations, even the sequestration of all their properties. The real cause of this persecution was the hatred which has always animated some people towards the religious orders; but the pretext put forth was that with the expansion and progress of the Convent the State suffered. (Cf. foregoing chapters vi-ix, pp. 249-276). The author to off-set this, gives a catalogue of the enormous losses which the Portuguese suffered owing to their greed, bad administration and slackness, consequent upon a falling-off in their moral character and high ideals.

[2] Near the old City of Goa.

de Tavora, which consisted of twenty-six or twenty-seven ships loaded with provisions, in which the King alone was interested to the extent of one hundred thousand xerafins. The loss amounted to over two hundred thousand xerafins.

196. The loss owing to the destruction of our settlement (*arrayal*), and of other villages in Ceylaõ by the Chingalas (Singalese) is estimated at two hundred and twenty thousand xerafins. Three hundred and fifty Portuguese with their General Cõstantino de Sà de Noronha were killed in this action.

197. Of the fleet which the Count of Linhares sent to Cochim, the galley in which D. Jorge de Almeida was going to Ceylaõ was lost, causing a loss of sixteen thousand xerafins, and the death by drowning of thirty Portuguese.

198. The spoils which the treacherous King took from us after the fall of the fortress of Mombaça are estimated at four hundred thousand xerafins in money, goods and artillery. Besides other people, ninety Portuguese and eight religious were killed in this affair.

199. The fleet, which Dom Francisco de Moura took to Mombaça, sustained a loss of ten thousand xerafins, both in the Galliot of Andre de Vasconcellos, which was taken by the Dutch, and in the arms and spoils which the Negroes captured from us, killing one hundred men.

200. The loss in the two ports of Orixa [Orissa], Cuguly [1] in Bengal, which the Moorish Mogols took and destroyed, is estimated at one million and eight hundred thousand xerafins, both in money and in merchandise. Three hundred Portuguese were killed, and six Galliots, together with other small craft, were taken.

201. The Nayque of Madurè came to sack our settlement of Negapataõ, and took nearly twenty thousand xerafins./

202. In the rivers of Cuama [2] the Negroes killed sixty Portuguese, two hundred Christians of mixed descent, some Fathers of the Company [of Jesus] and a Dominican, and took clothing to the value of one hundred and fifty thousand xerafins. [P. 336].

203. In the Patache of Antonio Leyte de Azevedo, which was coming from Ceylaõ to Cochim, and was taken by the Malavares, there was a loss of fifteen thousand xerafins, and twenty-four Portuguese, including Henrique da Sylva, brother of Ruy Dias da Cunha, were killed.

204. In the Galliot of Diogo de Mello de Castro, which was coming from Malaca to Saõ Thomè and was taken by the Dutch, the loss amounted to twenty-five thousand xerafins.

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[1] A misprint for Ouguly, i.e., Hugli. The other port was probably Pipli or Higili.—*H. Hosten S.J.*

[2] River Zambezi and its many branches, E. Africa. For a full and rather poetic description of the river, dated 1597, cf. *Purchas His Pilgrimes*, vol. ix, pp. 220-221.

205. In the Patache of Dom Philippe Mascarenhas, which was going loaded with Oaurim [1] to Bengal and was taken by the Dutch, there was a loss of twenty thousand xerafins.

206. In the Patache of Francisco da Sylveira Claveiro, Captain of Chaul,[2] which was taken by the Dutch, there was a loss of twenty thousand xerafins.

207. In the Galliot of the said Claveiro, which was coming from Sinde and was taken by the Dutch, there was a loss of twenty-two thousand xerafins.

208. In the Galliot of Francisco da Costa, which was coming from the Congo,[3] and carrying twelve horses, and was taken by the Dutch, there was a loss of nearly twenty thousand xerafins.

209. Great was the loss which we sustained in the five Galliots, which were coming from China, together with the Patache, of which D. Jeronymo da Sylveira was the Captain-in-chief. The ships had been ordered by the Count of Linhares to come to Pulbutum,[4] where they would find our fleet. Failing, however, to meet the same, they were attacked by the Dutch, who captured all the boats, excepting the Patache, commanded by the said D. Jeronymo da Sylveira, which disappeared. This loss is estimated at over nine hundred thousand xerafins.

[P. 337,] 210. In the following year, four out of ten of the King's Galliots, under the Chief Captaincy of D. Francisco Manoel were lost in the same straits of Malaca. Three were taken by the Dutch and one got stranded on the coast of Achem [Achin].[5] The loss in money amounted to twenty-two thousand xerafins, and in men to one hundred and thirty persons, including the said Chief Captain, the Admiral, and twelve Captains.

211. And immediately after, one month and a half later, arrived from China D. Philippe Lobo, the Captain-in-chief of four Galliots, which he burnt to avoid capture by the enemy. The loss amounted to six hundred thousand xerafins.

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[1] A misprint for caurim=cowries.—*H. H., S.J.*

[2] On the W. Coast, near Bombay.

[3] This must be Bandar Congo or Bandar Kung in the Persian Gulf.

[4] This must be composed of the two words *Pulu* or *Pulo* and *Butun*. *Pulo* meaning an island as in the case of Pulo Penang. We find the spelling *Pullubutum* in Danvers' *Portuguese in India*, vol. II, p. 229. An island called Butun or Bouton is shewn in the old maps by Giacomo Cantelli da Vignola, 1683. and by Herman Moll, copies of which are to be found in the Imperial Library, Calcutta. In modern maps it corresponds to Buntong I. Situation: off the W. Coast of the Malay Peninsula, and to the N. W. of Pulo Penang. In the 17th century the Island of Butum was a kingdom, and had commercial dealings with the English. Cf. *Purchas His Pilgrimes*, vol. III, pp. 91-92.

[5] A state and town at the N. W. angle of Sumatra, which was long. and specially during the 16th and 17th centuries, the greatest native power on that island. Cf. *Hobson-Jobson*, s. v. Acheen.

including a loss to the King of eighty thousand xerafins in copper, which was being brought for the casting of artillery.

212. The Dutch captured off Cochim a Galley in which the Captain-in-chief, D. Antonio de Soto Mayor, was going with help to Malaca, and caused thereby a loss of twenty-six thousand xerafins. Besides, forty men were taken prisoners, and the other Galley of the fleet and two Galliots were forced to make for China.

213. In the Patache of Manoel Franco, which was going to China and was taken by the Dutch, there was a loss of twenty thousand xerafins.

214. The War fleet of the North and the Merchant fleet coming from Cambaya under the Captain-in-chief, Leonel de Sousa, sustained loss to the extent of sixty thousand xerafins, as the Dutch captured near Damaõ nineteen merchantmen and two men-of-war, killing or taking prisoners fifty men.

215. The loss in the two cargo Galliots and one man-of-war which the Dutch took from the fleet of D. Julianes de Noronha, amounted to fifty thousand xerafins. Seventy Portuguese, including the son and heir of Manoel de Moraes Sopico, were killed or made prisoners.

216. In the three armed Galliots which went to the rivers of Cuama under the Captain-in-chief, Francisco Pereira Darque, there was a loss in gold of three hundred thousand xerafins. The boats, after leaving Quilimane, were eventually lost, but some persons escaped./

217. In Diogo Fernandez Reygoto's ship, which carried eighteen cannon, and was taken by the Dutch on the way from China, there was a loss of one hundred and forty thousand xerafins, and twenty-eight Portuguese, out of the ninety on board, were drowned. [P. 338].

218. In Simaõ Cardoso's Galliot, which disappeared on her way to Moçambique, there was a loss of fifty thousand xerafins, besides the death of the people that she carried.

219. In Valentim Gracia's Galliot, which was going to Manila, there was a loss of twenty-five thousand xerafins.

220. In Ruy Dias da Cunha's Galliot, which was also going to Manila, there was a loss of twenty thousand xerafins.

221. In Philippe Pinto's Galliot, which came from Mombaça, and, fearing the Malavares, entered Raiapor,[1] there was a loss of eighteen thousand xerafins, as she was taken by the Moors of the Idalcaõ.

222. In Francisco da Sylveira Claveiro's Galliot, which was coming from Catifa[2] and was captured with eighteen valuable horses by the Malavares, there was a loss of thirty-two thousand xerafins.

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[1] Raiapor=Rajapur on the Konkan Coast, Bombay Presidency

[2] El Katiff, a fortress on the Coast of Arabia, opposite to Ormuz.

223. In the Patache of Joaõ de Tovar, Captain of Chaul, which being on its way to Mombaça with a cargo of clothing was captured by the Malavares just outside the said port, there was a loss of eighty-six thousand xerafins.

224. In Francisco Moniz da Sylva's Galliot, which was coming from Mascate,[1] and was taken by the Dutch below the fort of the Aguada,[2] there was a loss of sixty thousand xerafins.

225. In the Galliot of Julio Moniz, Captain of Mascate, which was taken by the Dutch, there was a loss of forty thousand xerafins. In another Galliot of the said Moniz which was captured by the Dutch two days after having sailed from Mascate, there was a loss of seventy thousand xerafins, and the Ouvidor da Fazenda (Superior Revenue Officer) and the other hidalgos travelling with him were made prisoners.

[P. 339]. 226. Eight Galliots and three Pataches, that were in the Bay of Columbo waiting to ship cinnamon for this City of Goa, were lost in a storm before they could take in their cargo, and there was a loss of forty thousand xerafins.

227. Thirty sampans[3] (*Chapanas*) which were coming across to the other coast laden with Azegua,[4] were totally lost, a damage of twenty thousand xerafins.

228. In Gaspar Alvarez da Costa's Galliot, which was coming from China and was taken in the Straits by the Dutch, there was a loss of fifty-five thousand xerafins.

229. In Manoel de Azevedo's Patache, which was coming from Baçorá[5] and was taken by the Dutch, there was a loss of thirty thousand xerafins.

230. In Pedro de Olveira's Galliot, which was going to Manila and was captured in the Straits by the Dutch, there was a loss of twenty-six thousand xerafins.

231. In Luis Gomes' Galliot, which was going to China and was taken by the Dutch, there was a loss of thirty-two thousand xerafins.

232. In Romaõ de Lemos' Galliot, which was coming from Ceilaõ, there was a loss of twenty-eight thousand xerafins.

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[1] As it is generally known, this is and was on the mainland, Gulf of Oman Coast, Arabia. An English traveller, Joseph Salbancke, says, however, that in 1609 he was taken by the Portuguese at Snar, as a prisoner on account of alleged espionage, to "Mascate, an Iland," where they had a garrison and a church (Cf. *Purchas His Pilgrims*, vol. III, p. 88). The Portuguese settlement must have been on one of the small islands, which form the fine harbour of Muscat (Cf. *Universal Geography* by E. Reclus, vol. IV, p. 474, fig. 208). Salbancke, having come and left as a prisoner, could not have seen the main town.

[2] Still in existence, on the coast of Goa, guarding the entrance to the Capital.

[3] Cf. *Hobson-Jobson*, s. v. Sampan=a kind of small boat or skiff.

[4] A mi-print for Arequa=areca-nuts. The ships were crossing from Ceylon to India.

[5] Basrah, in the Persian Gulf.

233. In Balthazar Nogueira's Galliot, which was taken by the Malavares on her way from Negapataõ, there was a loss of twelve thousand xerafins.

234. In Miguel de Rego de Negreiros' Patache, which was coming from Cochim laden with cases (? *caxaria*) and hides (*courama*) for the Home boats, and was taken by the Dutch, there was a loss of eighteen thousand xerafins.

235. In Marçal de Macedo's Patache, which was also coming from Cochim, together with Rego, loaded with the same kind of goods for the Home boats, and was carrying also clothing, there was a loss of twenty-five thousand xerafins.

236. In Antonio Joaõ da Veiga's Galliot, which disappeared on her way to Baçorá, there was a loss of twenty thousand xerafins.

237. In Lourenço Carvalho's Galliot, which was also going to Baçorá and disappeared in the same company, there was a loss of twenty-six thousand xerafins. [P. 340].

238. In the five Choòs,[1] which were coming from China to Malaca, and were captured in the Straits by the Dutch, there was a loss of one hundred and eighty thousand xerafins.

239. In the Galliot, which turned turtle twelve leagues off Macao, the Chief Captain Antonio de Tavora lost his life, and there was a loss of forty thousand xerafins.

240. In Antonio de Mendonça's Galliot, which was coming from Malaca to Negapataõ and was taken by the Dutch, there was a loss of nearly twenty thousand xerafins.

241. In the Patache of Pedro Fernandez Serraõ, which the Dutch captured outside Mascate, there was a loss of twenty thousand xerafins.

242. In the Galliot of Antonio Moniz Barreto, Captain of Cochim, which was taken by the Dutch on her way to Malaca, there was a loss of eighteen thousand xerafins.

243. In the Patache of Jorge Ribeiro, which was coming from Cachanagana[2] and was taken by the Malavares, there was a loss of twenty thousand xerafins.

244. In the Galliot of Sebastiaõ Correa, Chief Merchant of Sinde, which was coming from the said Sinde and was taken by the Malavares, there was a loss of thirty thousand xerafins.

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[1] I do not find this word either in dictionaries or books of reference. It must mean some kind of boat.

[2] This must be a misprint for Cachanagara, which, W. Irvine thinks, is composed of the words *Kachh* (Kutch) and *nagara*= a town (Cf. Storia do Mogor, vol. I, p. 324, *n.* 2). A town called Cacha is shewn in a number of old maps. John Senex and Herman Moll locate it on the mainland, at the mouth of a River Poddar (not found in modern maps), to the North of, and almost opposite to the neck of the Kathiawar Peninsula. Giacomo Cantelli da Vignola, 1683, however, places the town on an island situated where the Island of Kutch, as now known, stands, thus fully supporting Irvine's opinion. Copies of the above-quoted maps are to be found in the Imperial Library, Calcutta.

245. In the Patache of Fernaõ Vaz de Cerqueira, former Captain of Baçaim (Bassein, Bombay), which was going from Barcelor to Cambaya laden with rice and was taken by the Dutch, there was a loss of twenty-five thousand xerafins.

246. In the Galliot of Martin Teixeira de Azevedo, an ex-Captain of Barcelor,[1] which was going to Dio [Diu] with a consignment of rice and was seized by the Malavares, there was a loss of fifteen thousand xerafins.

247. In the Patache of Andre da Costa, Judge of the Custom House (*Juiz da Alfandega*) of this City of Goa, which was going to Cachanagana, and was taken by the Dutch, there was a loss of sixteen thousand xerafins.

248. I was unable to ascertain the value of the arms which the Arabs seized after the death of Ruy Freire de Andrade in the five forts erected by him on the coast of Arabia, namely Julfar, Gorqua, Rames, Dobà and Sibo.[2]

[P. 341]. 249. In Jeronymo de Araujo's Galliot, which was taken by the Malavares on her way from S. Thomè (of Mylapore), there was a loss of fifteen thousand xerafins.

250. In Joaõ Rodriguez de Lisboa's Galliot, which was taken by the Dutch on her way from Sinde, there was a loss of twenty thousand xerafins.

251. In Diogo Leite Pereira's Patache, which was going to China and was taken in the Straits by the Dutch, there was a loss of twenty thousand xerafins.

252. In Antonio de Oliveira de Moraes' Galliot, which was going from Manila to China and was taken by the Dutch, there was a loss of sixty thousand xerafins.

253. In Aleixo de Mesquita Pereira's Galliot, which was

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[1] Barcelore and Bacanore are two ports of Canara often coupled together in old narratives, but which have entirely disappeared from modern maps and books of navigation, in so much that it is not quite easy to indicate their precise position. Cf. *Hobson-Jobson*, s. v. Bacanore. In old maps, however, they are distinctly shown. As for instance, in Thomas Kitchin's Universal Atlas (copy to be found in the Imperial Library, Calcutta), which is compiled from maps by d'Anville, Robert Rennell and other eminent geographers, Bacanore is located about forty statute miles from Mangalore, with Bracelore twenty miles farther up North.

[2] These were on the Coast of what is now known as the District of Oman, Arabia. I was able to trace all, except Rames, in Kitchin's Atlas. *Julfar* was on Coast of the Persian Gulf, about 50 miles from Cape Mussendom, Straits of Ormuz. Danvers says that this fort was erected between 1631 and 1632, in the neighbourhood of a celebrated pearl-fishery, about 50 leagues from Muscat. *Doba* or Daba was on the Coast of the Gulf of Oman, about 60 miles from Cape Mussendom. Sib or *Sibo* was also on the same coast, about 30 miles to the N. W. of Muscat. A place called Azibo, near Muscat, is mentioned in *Purchas His Pilgrimes*, vol. III. p. 88. *Gorqua* must stand for Borka or Burko, which is shewn in both old and new maps on the Coast of the Gulf of Oman, about 10 miles to the N. W. of Sib.

coming from Pegù to Cochim, and was seized by the Dutch, there was a loss of fifteen thousand xerafins.

254. In Francisco da Costa Monteiro's Galliot, which was captured by the Dutch on her way to China, there was a loss of thirty thousand xerafins.

255. In Antonio da Serra's Patache, which was carrying rice from Baçorà to Mascate, and was taken by the Dutch, there was a loss of eighteen thousand xerafins.

256. In Fernaõ Jorge da Silveira's Galliot, which was taken by the Dutch on her way to China, there was a loss of thirty thousand xerafins.

257. In Nicolao Dorta's Patache, which was seized by the Dutch on her way to Manila, there was a loss of twenty thousand xerafins.

258. In Manoel Gomes Cardoso's Galliot, which was captured by the Dutch on her way from China, there was a loss of thirty thousand xerafins.

259. In Antonio Soares Vivas' Galliot, which accidentally capsized on her way from China, there was a loss of one hundred and fifty thousand xerafins in money, and of fifty-eight Portuguese, besides other people./

260. In the Patache of Francisco de Brito de Almeida, [P. 342]
Captain of Columbo, which was coming from Malaca to Ceilaõ, and was taken by the Dutch, there was a loss of eighteen thousand xerafins.

261. In Pedro Soares de Brito's Patache, which was captured by the Dutch on her way from China to this City [Goa], there was a loss of twelve thousand xerafins.

262. In Francisco da Veiga's Patache, which was seized by the Dutch on her way from Mascate to Chaul, there was a loss of twenty thousand xerafins.

263. In Manoel de Azevedo's Patache, which was also coming from Mascate to Chaul, and was taken by the Dutch in the bar of Chaul, there was a loss of nearly thirty thousand xerafins.

264. In the Patache of Francisco de Sousa de Castro, Captain of Malaca, which was seized by the Dutch in the Straits of Sunda, there was a loss of forty thousand xerafins.

265. In the Galliot of Francisco de Sousa Coutinho, Captain of Damaõ, which was going to Cambaya with a cargo of rice, there was a loss of twelve thousand xerafins.

266. In the Galliot of Sebastiaõ Pinto, which was coming from the coast of Arabia and was taken by the Dutch, there was a loss of fifteen thousand xerafins.

267. In Diogo de Sousa de Menezes' Galliot, which was going to Manila and was taken by the Dutch in the Straits, there was a loss of twenty thousand xerafins.

268. In Joaõ Borges' Patache, which was going to Manila

and was burnt in the Straits on account of the Dutch, there was a loss of eighteen thousand xerafins.

269. In Balthazar da Veiga Lapidario's Galliot, which was going to China and was burnt in the same Straits on account of the Dutch, there was a loss of twenty-four thousand xerafins.

270. In the Patache of Fernaõ Vaz de Siqueyra, late Captain of Baçaim, which got stranded in Cachanagana, her cargo being taken by the Moors, there was a loss of sixteen thousand xerafins./

[P. 343]. 271. The Patache which was sailing under Captain Francisco Zuzarte, and in which Joaõ Rodriguez de Lisboa and Sebastiaõ Pinto had shares, was seized by the Dutch on her way from Mascate. The loss amounted to three hundred and sixty thousand xerafins.

272. In the King's Urca,[1] which under Captain Bernardo Froes set out from Mascate, Julio Moniz and other merchants lost a hundred thousand cruzados.[2] The boat got stranded on Moorish territory near Dio.

273. Other losses of this and other kinds could be mentioned here, but we content ourselves with this; the extent of the damage can be seen from the cases which have been set down here and which took place during the six years under survey. Dated Goa, 12th March, 1636. This is what this inquisitive writer relates in his manuscript. And Father Fernando de Queiròs, of the holy Society of Jesus, in his history of the Venerable Brother Pedro de Basto,[3] speaking of the losses caused by the Dutch in India during the period of which we are treating, writes as follows:—" Leaving aside the profits of which they deprived the Portuguese by obstructing the free

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[1] The dictionaries explain this word by " a kind of Dutch ship", " a kind of Indian ship."

[2] A Portuguese coin, so called because of the cross on it, worth between 2*s*. 3*d*. and 2*s*. 8*d*.

[3] Cf. p. 359, col. II. The Goethals' Indian Library in St. Xavier's College, Calcutta, possesses a copy of this now very rare Portuguese work. I had access to it through the courtesy of the Rev. Father H. Hosten, my indebtedness to whose enthusiastic inspiration and kindly assistance I take this opportunity to record. Though, as the title denotes, the book chiefly deals with the life of a religious, yet, as the saintly Jesuit made the welfare of his countrymen the object of his constant and ardent prayers, and exercised the gift of prophecy in connection with their successes and reverses, the author devotes twenty chapters (pp. 253-378) to a history of the Portuguese in the East from 1591 to 1644. A whole chapter (pp. 288-299) is given exclusively to a very interesting account of the various naval and military encounters between the English and the Portuguese from 1591 to 1635, when a treaty of peace was finally signed at Goa by the Viceroy, Count of Linhares, and William Methwold, President of the English East India Company. Father de Queiròs protests that he has taken the greatest possible care for the accuracy of his narrative (Cf. p. 254, col. I).

trade of the whole South, of which they became masters, the losses which the Dutch inflicted on the Portuguese, either by plundering, or by chasing their ships and causing them to get stranded in the Straits, are roughly estimated at thirty millions[1] including the final destruction of Malaca.''

[1] This sum must be in *cruzados*, the unit which the author mostly uses (Cf. p. 365, col. II; p. 366 col. I; p. 369, col. II; p. 372, col. II). Sums in *patacas* (pataca = about 1*s.* 10*d.*) are mentioned twice, but in *xerafins* not even once, in this section of the work.

15. North Indian Folk-Medicine for Hydrophobia and Scorpion-Sting.

By SARAT CHANDRA MITRA, M.A., B.L.

The *ojha* or medicine-man is an important member of the village-community in rural Bengal. He is either a Hindu of low caste or a Mahomedan. His profession is generally hereditary, the office descending from father to son. But it sometimes happens that when a new candidate for the village-sorcerer's calling displays his proficiency in spells and leechcraft by effecting a cure in some difficult case, he is appointed *ojha* for the first time. His vocation consists in the exorcism of ghosts and other supernatural beings and the treatment of the ailments which child-flesh is heir to, cattle-diseases, women suffering from hysteria, and cases of snake-bite and hydrophobia. He is believed to be an adept in beneficent as well as in nefarious magic. In his capacity as an exponent of malevolent sorcery, he is much more dreaded than loved, as the illiterate folks of the countryside suppose that he can inflict diseases and do all sorts of mischief, if he is offended in any way. By way of remuneration for his professional assistance, he receives fees in money or kind, proportionate to the pecuniary circumstances of the patient. In the olden times, the village *ojha* was credited with the possession of a good deal of thaumaturgic power. But with the progress of education and the spread of enlightenment in general, the belief in their potency has greatly fallen off, so much so that, at the present day, the number of the practitioners of sorcery can be counted on the fingers of a hand.

As stated above, the village *ojha* professes to cure cases of hydrophobia and snake-bite by means of his *mantrams* or spells. I propose, in this paper, to publish the texts, with translations and remarks, of two of his cure-charms for hydrophobia induced by the bites of rabid dogs and jackals, and one for exorcising away the venom of scorpion-stings. The language of these spells or *mantrams* is Bengali. As they have been borrowed from Bengal for use in Bihar, the instructions for using them are in Hindi. As the *ojhas* are mostly illiterate and low-caste men, the texts of these cure-charms, as taken down from their dictation, are very corrupt and make no sense. I have, therefore, given below the correct texts thereof. The text of the first cure-charm for hydrophobia is as follows:—

No. I.

कुत्ते गीदड़ का बिष दूर करने का

मन्त्र ।

1. दोहाई मनसा देवीर दोहाई ।
2. बिषमाता बिष होते निदया बोसे घरे ॥
3. मनसार महामन्त्रे (अमुकेर) अङ्गेर बिष सेंदो ।
4. एई कांसार भितर सेंदो ॥

तरीका ।

रोगी इतवार के दिन अति सबेरे ओझाके मकान पर जाय। वहांपर रोगी और ओझा एक साथ स्नान करके शुद्ध हो दोनों पूर्व्वकी ओर मुख करके बैठें। ओझा रोगीकी पीठकी तरफ खड़ा होकर एक साफ सुथरी कांसीकी थाली रोगीकी पीठ पर लगाकर यह मन्त्र तीनबार पढ़े और हरेक बार फूंक मारे। जो रोगी शरीर में बिष होगा तो थाली ऐसी चिपक जायगी कि अगर थाली को छुटाया जावे तो उसके साथ साथही रोगी भी गिर पड़ेगा। जब बिष निकल जायगा तो थाली भी अपने आप छुट जायगी।

Translation of No. I.

Incantation for exorcising away the venom of the dog and the jackal.

Text.

1. I seek the protection of the goddess Manasā.

2. The mother of all venomous creatures (i.e. the goddess Manasā), being more unkind than the venom itself, is sitting at home.

3. Under the influence of the powerful spells of (the goddess) Manasā, the venom in so-and-so's limb do enter—

4.——Do enter into this bell-metal (platter).

Direction.

The patient should go to the exorciser's house very early in the morning of a Sunday. There both the patient and the exorciser should purify themselves by bathing and then both

of them should sit facing the east. Thereafter the exorciser, taking his stand behind the patient's back, should place a well-cleaned bell-metal platter on the patient's back and recite the aforementioned cure-charm three times and each time blow upon the patient. If there should be any venom in the patient's body, the platter will so firmly adhere to his body that, should any attempt be made to take it off from his back, he (the patient) will also fall upon the ground therewith. When the venom is thoroughly extracted, the platter will of itself fall off the patient's body.

Remarks.

The most noteworthy features of the above-mentioned cure-charm are :—(*a*) The selection of a Sunday morning for the performance of the incantation; (*b*) the purification by means of the bath; (*c*) the act of sitting with the faces turned towards the east; (*d*) the application of the bell-metal platter to the patient's back for extracting the venom; (*e*) the blowing by the exorciser upon the patient's body; and (*f*) the invocation to the goddess Manasā. I shall discuss each of the foregoing points *seriatim*.

(*a*) The early morning of a Sunday appears to be very favourable for the performance of magic and exorcism-ceremonies. In the Bihari incantation for making an enemy restless, which I have already published,[1] the branch of the *Ficus glomerata* tree is cut very early in the morning of a Sunday.

(*b*) The bath is always resorted to in all purificatory and lustration ceremonies, as water is universally believed to drive off all evil and malignant influences. The performer of all magic and exorcism-ceremonies has also to purify himself by bathing before he commences the rites, as will appear from the incantation for bringing a woman under one's control,[2] wherein the sorcerer is directed, first of all, to cleanse and purify his body, change his clothes, and then commence his operations.

(*c*) The required practice of sitting with the face turned to the east is a survival, in modern custom, of the once universal rites of sun-worship. The worship of the Sun-god is a living cult in India.[3] As will appear from my latter paper, every pious Hindu, in Bihar, worships the Sun-god on Sundays

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[1] pp. 518-519 of Vol. IX of the Bombay Anthropological Society's *Journal*.

[2] pp. 510-511 of Vol. IX of the Bombay Anthropological Society's *Journal*.

[3] "*A Note on the Worship of the Pipal Tree in Bengal*," contributed to the Bombay Anthropological Society's *Journal*, Vol. X, pp. 302-306, as also in my article on "*Sun Worship in Bihar*" published at pages 466-474 of the *Calcutta Review* for October, 1904.

and observes a strict fast. He breaks his fast before sunset, and partakes of *chapatties*, milk and sweets only, avoiding all kinds of food in the preparation or cooking of which salt has been used. He also circumambulates the sun and repeats the undermentioned *mantra* or incantation:—

यानि यानि च पापानि ब्रह्महत्याशतानि च ।
तानि तानि विनश्यति प्रदक्षिणं पदे पदे ॥

Translation.

The circumambulation of the sun atones for all sins as also for all those which are tantamount to the sin of killing one hundred Brāhmans.

People believe that, by performing sun-worship, observing fasts on Sundays, performing the *Hom* ceremony and partaking of saltless food on those days, they will remain free from diseases and that, by circumambulating the sun, their sins will be expiated. It would thus appear that, by sitting with their faces turned towards the east, "The gates of the sun," as Tennyson has very appropriately called it, both the exorciser and the patient pray to the Sun-god for removing the venom of the dog-bite or jackal-bite from the latter's body and thereby curing him of hydrophobia.

(*d*) The application of the bell-metal platter to the patient's back for extracting the venom is an example of the "sucking-cure" which is a common practice of savage quackery. The Dayak priest of Borneo makes a pretension of taking out stones, splinters, rags, etc., which he declares are spirits, from the affected limb of his patient. The Fingo medicine-man, in South Africa, sucks the afflicted part of his patient's body and pretends to extract therefrom grains of the Indian corn, which are alleged to be the cause of the pain. Among the aboriginal tribes of Australia, the sorcerer pretends to extract from his own body, by means of passes, a magical essence, and causes it to enter his victim's body in the shape of a quartz pebble which inflicts pain on and wastes away, the latter's body. The medicine-man among the aboriginal Indian tribes of South America also pretends, by means of sucking the afflicted part of his patient's body, to extract therefrom bones, pieces of grit, thorns, mussel-shells, bits of wood—often even beetles, caterpillars, centipedes and the like—all of which he produces from his mouth as if all these objects and creatures had been in the sufferer's body. It is said that the very force of imagination cures the latter at once. In the cure-charm for hydrophobia, which forms the subject-matter of this paper, the medium employed for sucking out the venom from the patient's body is the bell-metal platter.

(*e*) I shall deal with the practice of the exorciser's blowing

upon the patient's body when I discuss the third cure-charm, namely, that for scorpion-sting.

(*f*) The goddess Manasā is the goddess of snakes and venomous creatures of all kinds. She has, therefore, been invoked in this cure-charm as "the mother of venomous creatures" (विषमाता). Another of her appellations is विषहरा or विषहरी or "the remover of all poisons." She has, therefore, been invoked by the exorciser for taking away the venom from his patient's body.

I now come to the second cure-charm for hydrophobia the text whereof is given below:—

No. II.

कुत्ते गीदड़ के काटे हुएको जल पढ़ने का

मन्त्र ।

1. आकट जाड़ा छड़ेर पड़ा ।
2. पूरो मने परो काय ॥
3. बाघ भल्लुक शेयाल कुकुर
4. गुया आकार अञ्जिनार
5. विष धरिया आन सिद्ध गुरु ।
6. श्री रामेर आज्ञा
7. बाटेर कालिका चण्डिकार आज्ञा ॥

तरीका ।

पढ़े हुए जल रोगीको पीना चाहिये ।

TRANSLATION OF NO. II.

Incantation for charming water wherewith to exorcise away venom from a person bitten by a dog or a jackal.

Text.

1. Medicinal herbs which have not been cut or which have fallen off themselves from a tree—

2. Wear upon your body with full faith (in their efficacy).

3. (The venom of) the tiger, the bear, the jackal and the dog,

4. And of the venomous lizard called *anjinā* which is mottled and streaked like an areca-nut,

5. Catch and bring, O preceptor well versed in sorcery!
6. This is the command of Srī Rāma.
7. This is the command of the goddess Kālikā (Chaṇḍikā) of the (cross)-road.

Direction.

The patient should drink the water which has been charmed with the recital of the aforementioned incantation.

Remarks.

The most characteristic features of the charm-cure No. II are:—(*a*) The use of medicinal herbs for the purpose of incantations, and the belief that they derive their efficacy from the fact of their not having been cut; (*b*) the belief in the existence of poisonous lizards; (*c*) the invocation to Rāma; and (*d*) that to the goddess Chaṇḍikā of the cross-road.

(*a*) Medicinal herbs have been used in India for the purpose of incantations since the times of the ancient Aryans when they settled in the Panjab. "The few instances we find in the Rig-Veda of the active use of spells may certainly be classed under the head of "white"—or harmless—magic since they consist almost entirely of the gathering and handling of herbs, apparently not even accompanied by conjuring—except in the case of a woman, *who digs up a plant to make a love-potion of*, for the routing of a rival in her husband's affections (X. 145). She appears to have been successful, for there is a song of triumph and exultation at having got rid of all intruders and secured the proper place as sole ruler of her household. But the general and approved uses of herbs and plants were evidently for healing purposes, as shown in the so-called "Song of the Physician"—really an herb-healer, who wanders about the country with his box of ashvattha-wood. The good man makes no secret of the fact that his chief object is a livelihood. This charming *cultur-bild* abounds in little homely touches which throw just the sidelights we are so eager for on the manners and ways of those otherwise unattainable times. The healer begins by formally announcing that he will sing the praise of "the herbs the verdant" which are among the oldest of things."

* * * * * "Hundredfold are your ways, thousandfold your growth, endowed with various powers: make me this sick man well. * * * * Give me victory as to a prize-winning mare. * * * For I must have cattle, horses, and clothes.* * * * * You will be worth much to me if you make my sick man well. He in whose hands herbs are gathered as numerous as nobles (or princes, *rājans*) in the assembly, he is accounted a skilful healer, a tamer of fiends and diseases,—the watery, the milky, the nour-

ishing, the strengthening,—here they all are together to heal what is wrong with him. The herbs' fragrance escapes (from the box) as a herd from the stable, to earn a good price for me —and thy life for thee, good man. * * * * * No let or hindrance keeps them back; they are as the thief who breaks through fences. * * * * * When I, O ye simples, grasp you sternly in my hands, sickness flees away, as a criminal who fears the grip of the law. In your progress from limb to limb, and from one articulation to another, ye drive sickness before you, as surely as a severe judge's sentence. Flee then, sickness, flee away—with magpies and with hawks; flee on the pinions of the winds, nay of the whirlwinds.'' (Roth's translation).[1]

This belief in the efficacy of herbs and plants for curing the ills that human flesh is heir to, survived in Europe even as recently as the close of the sixteenth century when plants were regarded from a purely utilitarian point of view, not only by the commoner folks, but also by many learned scholars. "Just as men lived in the firm belief that human destinies depended upon the stars, so they clung to the notion that everything upon the earth was created for the sake of mankind; and, in particular, that in every plant there were forces lying dormant which, if liberated, would conduce either to the welfare or injury of man. People imagined they discerned magic in many plants, and even believed that they were able to trace in the resemblance of certain leaves, flowers, and fruits to parts of the human body, an indication emanating from supernatural powers, of the manner in which the organ in question was intended to affect the human constitution. The similarity in shape between a particular leaf and the liver did duty for a sign that the leaf was capable of successful application in cases of hepatic disease, and the fact of a blossom being heart-shaped must mean that it would cure cardiac complaints. Thus arose the so-called Doctrine of Signatures, which, brought to its highest development by the Swiss alchemist, Bombastus Paracelsus (1493-1541), played a great part in the sixteenth and seventeenth centuries, and still survives at the present day in the mania for nostrums.''[2]

It will be seen from the foregoing remarks that it is *de rigueur* to cull the medicinal herbs, *not by cutting but by digging them up*, because it is supposed that, if they are cut out, the magical virtues lying dormant within them will escape.

(*b*) It is commonly believed that the lizard called बझिना or बाज़नाई is poisonous. It is likened to an areca-nut because of the streaks and spots on its body, similar to those existing

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[1] *Vedic India* (The Story of the Nations Series). By Zenaïde A. Ragozin. Third Edition. London: T. Fisher Unwin (no date), pp. 379-380.

[2] *A Naturalist in Western China.* By E. H. Wilson. 2 vols. London: Methuen & Co., Ltd., 1913. Vol. II, pp. 34-37.

on the said nut. But zoologically speaking, there is no poisonous lizard found in India or the adjoining countries. It is only in Mexico that a poisonous lizard, known to the zoologists as *Heloderma suspectum*, exists.

(*c*) Rāma is invoked in the foregoing cure-charm because he is believed by the Hindus of Bengal to be a friend of the bear whose hair is worn, enclosed in an amulet, as a charm against attacks of fever.[1]

(*d*) The goddess Chaṇḍikā is an incarnation of the goddess Durgā or Devī whose victories over the demons or *Asuras* are narrated in the *Chaṇḍī Māhātmya* which forms a part and parcel of the *Mārkaṇḍeya Purāṇa*. She is supposed to preside over spells and incantations. Hence the invocation to her. She has been invoked as "the goddess Kālikā (*Chaṇḍikā*) of the cross-road" because it is believed to be the favourite abode of the divinities. Numerous examples may be quoted to show the intimate connection, which exists in the minds of the superstitious, between the cross-roads on the one hand and the gods and the malignant spirits on the other. Among the deities of the Hindu Pantheon, Rudra is one who made his dwelling-place on the cross-roads and to propitiate whom offerings at the yearly sacrifices were generally taken to the latter place. Similarly those who are suffering from disease, are advised by the practitioners of folk-medicine to go naked to the cross-roads, make an offering of rice, recite some *mantrams*, and then return without looking back.

We further know from the evidence of folk-tales that, in ancient times in India, expiatory sacrifices were offered to the goddess Chaṇḍikā for saving the life of a king.

Those who are interested in the study of folk-medicine will note that, after the performance of the two aforementioned incantations for the cure of hydrophobia, the patient is not called upon to partake of anything substantial by way of medicine, except that, in the second case, he has to quaff off some charmed water. In this respect, they differ materially from the treatment for hydrophobia which is practised by a class of hereditary medicine-men in Gondalpārā in the district of Hughli in Lower Bengal, and is famous throughout the length and breadth of that province. Before the establishment of the Pasteur Institute at Kasauli, Bengali patients bitten by rabid dogs and jackals used invariably to resort to Gondalpārā for undergoing this well-known method of treatment. The mode of effecting the "cure" is "for the bitten person, after fasting, to defray the expense of a special service, and to receive a piece of red broadcloth impregnated with the snuff of a lamp-wick and secreted in the heart of a plantain. As long as the charm

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[1] *Vide* my paper on *The Bear in Asiatic and American Ritual* in the Bombay Anthropological Society's *Journal*, Vol. VII, page 478.

is preserved and the patient abstains from the eating of this variety of plaintain, the effects of the bite are warded off. Another plan is for the patient to take a secret medicine, probably cantharides pounded, with twenty-one pepper-corns before the twenty-first day. This causes the patient to throw off some mucus, known as the "dog's whelp," and this leads to cure."[1] It will thus be seen that, in the method of treatment practised by the medicine-men at Gondalpārā, the patient suffering from hydrophobia has to partake of some substantial "nostrum." But it is not known whether any *mantrams* or incantations are recited at the time of preparing the same.

We have now to consider whether there is any other popular cure for hydrophobia wherein neither any *mantrams* are recited by the village *ojha*, nor is the patient called upon to partake of any "nostrum" or even charmed water. Mr. W. Crooke has recorded that there is one such method of cure followed in Northern India, wherein the patient suffering from the effects of the bite of mad dogs and jackals has to look down seven wells.[2]

It should be further noticed that the numbers 3 and 7 and 21 (being the multiple of the first two numbers) play an important part in all the methods, described above, for the treatment of hydrophobia. In the first cure-charm, the *mantram* is recited three times, and the medicine-man has to blow upon the patient the same number of times. In the last hydrophobia-cure mentioned by Mr. Crooke, the patient has to look down *seven* wells. Whereas the "nostrum," prescribed by the medicine-men of Gondalpārā, has to be prepared with 21 pepper-corns and must be taken before the twenty-first day. Surely there must be some occult influence dormant in these numbers.

I now give below the text of the third cure-charm, namely, that for exorcising away the venom of the scorpion-sting:—

No. III.

बीछू के विष दूरकरनेका मन्त्र ।

1. ओं सरह स्फुः
2. ओं हिलि मिलि स्फुः ॥
3. ओं हिलि हिलि चिलि स्फुः ।

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[1] *Tribes and Castes of Bengal.* By H. H. Risley. 2 vols. Calcutta: 1891. Vol. I, page 367.

[2] *An Introduction to the Popular Religion and Folklore of Northern India.* By W. Crooke. Allahabad: 1894. page 28.

4. ब्रह्मणो स्फुः ॥
5. सर्व्वेभ्यो देवेभ्यो स्फुः ॥

तरीका ।

यह मन्त्र पढ़कर काटे ऊए अंग में फूंक मारै ।

Translation of No. III.

Incantation for exorcising away the venom of a scorpion.

Text.

1. *Oṃ sarah*[1], I blow.
2. *Oṃ hili mili*[1], I blow.
3. *Oṃ hili hili chili*[1], I blow.
4. I blow to Brahmā.
5. I blow to all the gods.

Direction.

While reciting this incantation, blow upon the limb which has been stung by a scorpion.

Remarks.

Modern ethno-psychological researches have shown that the object of the exorciser's blowing or spitting upon the patient's body or upon his affected limb is to effect the cure. most probably, by means of hypnotic suggestion and magnetism, especially by the former. The sorcerer among the South American Indians pretends to cure by blowing volumes of tobacco-smoke on the face of the patient or over the affected part of his body, as will appear from the following testimony of Dr. Theodor Koch-Grünberg of the Freiburg University:—

"He (the medicine-man) works his cures in all probability by means of hypnotic suggestion and magnetism, especially by the former. He will smoke furiously, take quantities of snuff and sundry intoxicating drugs, will dance and sing and make monotonous music for hours at a time on his magic instruments, chief of which is the gourd rattle, until he is worked into a kind of ecstacy, in which he has all kinds of hallucinations. This is followed by a condition of complete intoxication, in which he sees all sorts of similar illusory pictures. These he retails with all kinds of additions and embroidery when he awakes. And whatever he says he has seen in this

[1] The words *Oṃ sarah*, *Oṃ hili mili* and *Oṃ hili hili chili* appear to be meaningless and are, perhaps, used to add to the mystery of the incantation.

trance the Indian takes for a revelation. The accompanying ceremonial which the medicine-man carries out as part of the treatment in order to work upon the imagination of the patient and his relatives is very similar in every tribe, no matter whereabouts in South America it be. He will swing the magic rattle and maintain a monotonous song often for hours at a stretch. He will interrupt this only to give the patient volumes of tobacco-smoke in the face or over the affected part and at the same time squeeze and spit upon the latter. All this noise, the smoking, and the continually-repeated exactly similar movements of the medicine-man must have an effect upon the patient that can only be described hypnotism. Finally he sucks the painful part and after some time produces from his mouth bones, pieces of grit, thorns, mussel-shells, bits of wood—often even beetles, caterpillars, centipedes, etc., apparently as if these had been in the patient's body. Very force of imagination cures the patient at once!"[1]

Dr. A. C. Haddon is also of the opinion that suggestion combined with hypnotism lies at the root of such magical practices as the pretension to cure a patient by blowing either upon his body or upon his affected limb. He says:—"The far-reaching power of suggestion has been perhaps the most potent factor in upholding magical practices, especially when it is combined with hypnotism. * * * * * * Suggestion alone, without the aid of hypnotism, can effect wonders, and faith cures and Christian science are by no means a new thing under the sun, but something very old under new names. Probably every physician has known cases of persons who died because they did not want to live or were at least indifferent; and probably an equal number who materially lengthened their lives by the mere determination not to die. The psychology of the matter is up to a certain point simple enough. Just as the savage is a good actor, throwing himself like a child into his mime, so he is a good spectator, entering into the spirit of another's acting, herein again resembling the child, who can be frightened into fits by the roar of what he knows to be but a "pretended" lion. Even if the make-believe is more or less make-believe to the victim, it is hardly less efficacious; for dominating, as it tends to do, the field of attention, it racks the emotional system, and, taking advantage of the relative abeyance of intelligent thought and will, sets stirring all manner of deep-lying impulses and automatisms."[2]

The student of comparative folklore will notice that, in the foregoing charm-cure, Brahmā and all the gods have been invoked, though he would have naturally expected to find therein an invocation to the goddess Kālikā or Chaṇḍikā or Pārvatī

[1] Hutchinson's *Customs of the World*, Vol. II, pp. 1001-2.
[2] Haddon's *Magic and Fetishism* (Ed. 1910), pp. 53-55.

—incarnations of Devī or Durgā—who presides over spells and leech-craft. This omission is curious, for such an invocation to the said goddess is to be found in another cure-charm for scorpion-sting from Northern India, the translation whereof is as follows :

"Black scorpion of the limestone! green thy tail and black thy mouth. God orders thee to go home. Come out, scorpion! at the spell. Come out, come out. If you fail to come out, Mahādeva and Pārvatī will drive thee out." [1]

We should now compare the foregoing cure-charms from Northern India with those in use in the countries adjacent to India. First of all, let us discuss one from Persia. Miss Ella C. Sykes, who sojourned in Persia for a long time, says that, in that country, "some families possess an infallible remedy for the stings and bites of scorpions and tarantulas, in the shape of certain small stones, which are kept as heirlooms and handed down from generation to generation as most cherished possessions These are believed to be a secretion from the eyes of an unfortunate prince, turned by enchantment into an ibex, which lamented its cruel fate with floods of tears, that hardened as they fell on the barren Persian hills, among which it was condemned to wander." [2] Unfortunately, Miss Sykes has not placed on record the method of using the aforesaid stones for effecting the cure. If these stones are applied to that part of the body which has been stung by a scorpion or tarantula for extracting the venom therefrom, we may safely place this Persian method of treatment in the category of "sucking-cures" and conclude that it is the Persian analogue of the North Indian cure-charm No. I. described *supra*, wherein the bell-metal platter is used for extracting the venom from the patient's body. Then again, Miss Sykes has omitted to record whether or not any prayer to Allah is recited at the time of applying these stones to the afflicted part. If the recital of any such prayer is necessary at the time of using the stones, the similarity between the North Indian cure-charm No. I and the Persian "sucking-cure" is complete. The question, therefore, arises: Whether or not any such prayer is recited at the time of applying these stones to the patient's body ?

Now it would appear from the following testimony of Miss E. C. Sykes that a prayer to Allah or an invocation to the Prophet is an indispensable adjunct of the Persian method of the treatment of diseases :—"Besides silks, we bought quaint, incised metal boxes and old brass bowls, one of these latter being once the stock-in-trade of a native doctor

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[1] Crooke's *An Introduction to the Popular Religion and Folklore of Northern India.* Allahabad: 1894. p. 98.

[2] *Through Persia on a Side-Saddle.* By Ella C. Sykes. London: John Macqueen. 1901. p. 112.

The signs of the zodiac are inscribed all round the outside of such bowls, and inside are engraved descriptions of the different diseases that afflict man, combined with prayers to Allah. The doctor possesses a small key for each prayer, and his mode of curing a patient is thus: He fills the basin with water, drops the key against the prayer suitable for the complaint with which he is dealing, and if the invalid swallows the water in a believing spirit, his recovery from illness will be effected. Women wishing to gain the love of their husbands use these bowls, repeating an invocation to the Prophet as they pour the water over their heads.''[1]

In view of the foregoing testimony, we are justified in presuming that a prayer to Allah would appear to be invariably recited at the time of applying the aforementioned stones to the patient's body.

Now we should proceed to Arabia and find whether there is any popular method of treatment in vogue in that country, for the cure of scorpion-sting. We are again indebted to Miss E. C. Sykes for the evidence to show that there is one such cure prevalent in that country. She says :—

"The Arabs have a far less agreeable remedy for the sting of a scorpion. The sufferer is laid in a freshly dug grave, and upon him are heaped the garments of seven married and seven unmarried men. If he is unable to survive this suffocating treatment, he is buried forthwith in the grave so considerately prepared beforehand.''[2]

The most curious part of this mode of curing the scorpion-sting is the heaping up over the patient the garments of seven married and seven unmarried men. Here we find that that number of mystic significance—7—plays an important part again as it does in the North Indian cure-charms described *supra.* If the object of this mode of treatment is to effect the cure by subjecting the patient to a very high degree of temperature, we have here an anticipation by the primitive Arabs of the modern European treatment of hydrophobia-patients by the Buisson Bath.

Corrupt Text of the Cure-Charm No. I for the Cure of Hydrophobia.

कुत्ते गीदड़ का बिष दूर करना

मंत्र। दोहाई मानसा देवीर दुहाई। बिरमाता बिष हत निरया बै। वोसे घरे मनसार महामंत्रे। (अमुकेर) अङ्गेर अमुकेर बिष सेदो एई कांसार तें तरसे दो।

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[1] *Op. cit.*, p. 46.

[2] *Op. cit.*, pp. 112-13.

Corrupt Text of the Cure-Charm No. II for the Cure of Hydrophobia.

कुत्ते गीदड़ के काटे ऊए को जल पढ़ना

मंत्र। आकट जारा, बच्चार पोड़ा पोरोमते पार काय। बाघ, भल्लुक, शृयाल, कुक्कर, गुया, आकार, अग्निनार, बिष करिया आन सिद्धि गुरु श्री रामेर आज्ञा वाटेर कालिका चंडिका।

Corrupt Text of the Cure-Charm No. III for the Cure of Scorpion-Sting.

बीछू के बिष दूरकरनेका मंत्र। ओं सरह स्फुः। ओं हिलि मिलि स्फुः। ओं हिलि हिलि चिलि स्फुः; ब्रह्मणो स्फुः सर्वेभ्यो देवेभ्या स्फुः।

16. NUMISMATIC SUPPLEMENT No. XXV.

Note.—The numeration of the articles below is continued from p. 488 of the "Journal and Proceedings" for 1914.

147. First Supplement to 'The Mint Towns of the Mughal Emperors of India.'

A paper called 'The Mint Towns of the Mughal Emperors of India' appeared in the 1912 issue of the Journal of the Asiatic Society of Bengal. In the Introduction I mentioned my intention of keeping the Mint Tables embodied in that contribution up to date by the periodical issue of correction and addition slips, and hoped that collectors would help by permitting me to mention their unpublished coins. I now publish the first Supplement to that work.

The errors requiring correction fall into three classes. There are a few ordinary misprints which escaped detection when the proof sheets were read. One or two references, though present in the manuscript, remained unrecorded through inadvertence. I may mention the currency of Murād Bakhsh issued at Sūrat. Lastly mistakes crept in owing to errors in published works which have been discovered since the publication of the Mint Tables.

Errata.

P. 430. *For* Mandīsor *read* Mandisor.

P. 430. *For* Hiṣṣār, *read* Hiṣār.

P. 430. *To* Awadh, and Akhtarnagar Awadh, *add* Ṣūba Awadh

P. 435. ***For* قبه, *read* قلعه.**

P. 436. *For* Mr. Rodgers at the time of writing said that the coin was in his possession, *read* This coin was seen by General Cunningham in Lucknow in 1840, and an imprint of it taken.

This correction has already been embodied in a slip issued with the original paper. It is to be hoped that the coin is still in existence, and that it may be traced by one of our keen Lucknow collectors.

P. 438. *For* Itāwa, *read* Itāwā.

P. 439. *Column* Ajmer, *AV*, *line* 5, insert G(1).

P. 453. Aṇwala should succeed Anūpnagar.

P. 455. *For* Bilānagargadha, *read* Bālānagargaḍhā.

P. 461. Under Bindraban, the coins of Mūminābād have been omitted. As Bandar Shāhī has now been shown to be a

mistaken reading—see below—this mint should be deleted, and the column devoted to Mūminābād. The only entry is Shāh 'Ālam II, Æ, P. M.

P. 476. *For* Chitor, *read* Chītor.

P. 478. *For* Ḥiṣar, *read* Ḥiṣār.

P. 484. *For* Deogarh, *read* Deogaṛh.

P. 487. *Column* Satārā, Æ, *line* 8, delete T. This is a clerical error.

P. 490. At head of first column, interchange Æ and Æ.

P. 491. Qanauj should precede Kābul.

P. 493. *For* Sitpūr, *read* Sītpūr. Also Sītpūr should follow Sahrind.

P. 494. Sīkākul should succeed Sahrind and Sītpūr.

P. 496. *For* 'Āẓīmābād, *read* 'Aẓīmābād.

P. 505. On this page is the mint-name Kiratpūr, which on page 429 is written Kīratpūr. One of these is an error, but I should like to see the coin before deciding which is the correct rendering.

P. 510. There is a reference to a Gohad copper coin of Akbar. This is a pure clerical error, and should be deleted.

P. 517. *For* مصتفے اباد Muṣtafa-ābād, *read* مصطفے اباد Muṣṭafa-ābād.

P. 523. On p. 429 I have mentioned Nāhan mint as being somewhat doubtful though included, but by inadvertence have omitted it from the actual Tables. One of the vacant columns should be devoted to Nāhan mint, which should really follow Nāgor. The only entry is Shāh 'Ālam II, Æ, R(1).

Corrections and Additions.

P. 429. *For* Bikānir, *read* Bīkāner.

P. 433. My remarks on the Ajmer mint now require amplification. In 1913 I had the pleasure of inspecting the fine Indian coins in the Bibliothèque Nationale, Paris. Amongst them was an unpublished zodiacal muhar struck at Ajmer mint of quite a new type. I have illustrated this fine coin on Plate XXI of the second volume of the new Lahore Museum Coin Catalogue. A reproduction of the Sagittarius muhar at Paris bearing the name of Nūr Jahān, of the Lāhor mint, is also on the same Plate. I wrote that this was the only known zodiacal coin struck at Lāhor mint. But I find that a Capricornus rupee struck at Lāhor, dated 1036 A.H., is in the Berlin Museum—see La Revue Numismatique, 1902, p. 480. Mr. C. J. Brown has just acquired a very fine Capricornus rupee bearing a Nūr Jahān couplet, and struck at Lāhor.

P. 435. Pattan. Dr. G. P. Taylor has recently acquired a dām of Akbar of year 985 A.H., which bears the full mint name of Anharwāla Pattan.

P. 435. Zainu-l-bilād. A reference is invited to the Note on this mint in the second volume of the new Lahore Museum Catalogue, and to Mr. A. Master's paper 'The Mint Town Zainu-l-bilād' in N. S. XXI.

P. 440. *For* Ujain, *read* Ujjain.

P. 441. *Column* Aḥmadābād, A/, *line* 24, insert P.M. This muhar is interesting in view of Mr. A. Master's recent paper on the Aḥmadābād mint—N. S. XXII. Its fabric is exactly similar to that of the Aḥmadābād muhar of Bedār Bakht, struck in the same year.

Aḥmadābād muhars of Akbar's earlier types are not rare, but are quite unknown of the Ilāhī type. Otherwise all known Aḥmadābād muhars are very scarce.

Column Aḥmadnagar, Æ, *line* 4, delete B.M. This is really a Nizām Shāhī coin—compare N. S. VII, § 48.

P. 441, second footnote. Mr. H. Nelson Wright has a couplet Aḥmadānagar rupee of Jahāngīr, and also an Aḥmadānagar rupee of the usual Ilāhī type.

P. 446. *Column* A'ẓamnagar, AR, line 11, insert XXII.

P. 448. *Column* Akbarnagar, Æ, *line* 7, insert Cabinet de France; *line* 14, delete B.M. The latter coin is really of Jahāngīrnagar mint.

In *line* 4, A/, insert J. P. (Collection of Mr. Jagat Prasad, Post Office and Telegraph Department, Delhi).

P. 451. *Column* Sūba Awadh, AR, *line* 24, insert C. J. B. (Cabinet of Mr. C. J. Brown, Lucknow).

P. 454. *Column* Bālāpūr, Æ, *line* 20, insert B.M.

P. 455. A copper coin of Akbar of Budāon mint has been published in Mr. W. H. Valentine's 'The Copper Coins of India', Spink & Son, 1914.

P. 457. *Column* Burhānpūr Æ, *line* 4, insert T.

Column Barelī A/, *line* 11, insert B. Gold coins of Barelī mint are very rare.

P. 458. *For* بکانر Bikānir, *read* بیکانیر Bīkāner.

P. 459. *Column* Balwantnagar, Æ, *line* 24, insert B.M.

P. 460. *Column* Bindraban Muminābād, Æ, *line* 24, insert Ca.

P. 461. The mint-name Bandar Shāhī has been shown to be an erroneous reading, the real mint being Srīnagar—see the new Lahore Museum Coin Catalogue, Vol. II, pages xcvi and 95. It should be deleted, and the column devoted to Mūminābād—see above.

P. 462. *For* Bahādurpatan, *read* Bahādurpattan.

Column Bahādurgarh, Æ. *line* 16, insert VI.

P. 463. *For* Bharatpūr, *read* Bhartpūr.

For Bharoch, *read* Bharūch.

Column Bharūch, AR, *line* 24, insert T.

P. 465. Bairāta silver coins should be attributed to a new

mint Barār, to which one of the supplementary empty columns should be devoted. The only entries relate to Akbar and Jahāngīr. See N. S. XXIII, § 135. Barār should really succeed Budāon.

P. 466. *Column* Pānīpat, Æ, *line* 24, insert B.M. Mr. C. J. Brown has pointed out that the epithet should read قيمه instead of قطعه—see the second volume of the new Lahore Museum Catalogue, p. lx. I accept this emendation.

P. 467. *Column* Patna, AV, *line* 16, delete B. M. This coin is of Sahrind mint.

Column Purbandar, Æ, *line* 16, insert P.M.

P. 469. *Column* Tatta, AV, *line* 4, insert P.M. Also in same column, Æ, *line* 20, insert L.M.

P 473. *Column* Jūnagarh, AV, *line* 8, insert N. S. XVI. Attention is called to Dr. G. P. Taylor's monograph on the coins of Jūnagarh in N S. XIX. *Column* Jahāngīrnagar, AR, *line* 14, insert B.M. This coin, from the Bleazby Collection, was incorrectly attributed to Akbarnagar mint—see above.

P. 475. I have stated that all known coins of Champānīr mint are of date A.H. 942—see second volume of the new Lahore Museum Catalogue, p. lxx. Mr. Nelson Wright has a new type of copper coin dated 943.

P. 476. *For* Chīnāpatan, *read* Chīnāpattan.

P. 488. *Column* Sa'dnagar, AV, *line* 16, insert L.M.

P. 489. *Column* Sūrat, Æ, *line* 4, replace P. M. by R(1).

Column Sūrat, *line* 9, AR and Æ; insert B. M. and I (Roman numeral) respectively.

Column Sūrat, *line* 11, Æ, delete T(2). A characteristic feature of the Sūrat mint is that half-rupees of nearly every Emperor and claimant issued from it.

P. 490. *Column* Sahāranpūr AV, *line* 24, insert B.

P. 491. *Column* Shāhjahānābād, Æ, *line* 7, delete XV. This coin is really of Akbarābād mint. See Mr. W. H. Valentine's 'The Copper Coins of India,' Part I, p. 94, number 39.

Column Shāhjahānābād, Æ, *line* 11. I regard this entry as doubtful.

Column Shāhjahānābād, Æ, *line* 16, insert P. L. (Collection of Mr. Panna Lal, I.C S., Moradabad, U. P.).

P. 497. *Column* Farrukhābād, AV, *line* 16, insert W. Also AV, *line* 22, insert Ca.

P. 498. *Column* Fīrozgarh, AV, *line* 16, insert XXII, § 130.

P. 499. *Column* Qandahār, AV, *line* 4, delete B.M.; do, Æ, *line* 4, insert P M.

P. 500. *Column* Kābul, Æ, *line* 17, insert Sut. (Collection of Mr. R. Sutcliffe, Burnley, England).

Column Kābul AR, *line* 22, delete L. M. This is really a coin of Aurangzeb.

P. 501. *Column* Katak, AR, *line* 3, insert B. M.

P. 503. *Column* Kashmīr, AV, *line* 5, insert D. C. I recommend this entry on the sole authority of the Da Cuñha Sale Catalogue which records the existence of a gold zodiacal coin of Kashmīr mint bearing the names of Jahāngīr and Nūr Jahān.

P. 504. *Column* Korā, AV, *line* 17, insert Wh. Also *line* 22, Æ, insert I.M.

P. 505 Kambāyat. Readers are referred to Dr. G. P. Taylor's monograph on the coins of Cambay—see N. S. XX, §119.

Also *line* 20, AV insert Ca.

P. 506. *Column* Gulbarga, AV, *line* 14. This entry is doubtful.

P. 509. *Column* Gorakpūr, Æ, *line* 7, insert W.

P. 513. *For* Machhlīpatan, *read* Machhlīpattan.

Column Machhlīpattan, Æ, *line* 22, delete P.M. and insert Cabinet de France.

P. 517. *Column* Mu'azzamābād Æ, *line* 14, insert B.M. See Mr. W H. Valentine's 'The Copper Coins of India', Part I, p. 102, number 1·1. Also Æ, *line* 16, insert L.M.

P. 520. *Column* Mūngīr, AV, *line* 24, insert B.

P. 522. *Column* Nārnol Æ, *line* 4, insert Wh.

I have lately acquired a full dām of Gwāliar mint of type Indian Museum Catalogue, Plate IV, 445, which shows that the epithet preceding قلع, so far unread, is in all probability معلی. This reading is fortified by the fact that Mr. C. J. Brown has independently arrived at the same conclusion.

Full tankas of Akbar were formidable copper pieces weighing 640 grains, and are now very scarce. They are known of the following mints :—Aḥmadābād, Āgra, Bairāta, Dehlī, and Gobindpūr. Those of Aḥmadābād mint are described and illustrated in Dr. G. P. Taylor's 'The Coins of Aḥmadābād,' Journal of the Bombay Branch of the R.A.S., 1900. The cover of Mr. W. H. Valentine's 'The Copper Coins of India' is ornamented with the reproduction of a full tanka of Agra mint, the coin itself being in the Lahore Museum. Dr. White King also had one of the same year and month. Similar pieces of Bairāta mint are in the Indian and the Lahore Museums. A very fine full tanka of Dehlī mint is described and illustrated in Mr. C. J. Rodgers' paper Copper Coins of Akbar', J. A. S. B., 1880. It is of year 43, month Dī, and is probably the earliest known of this heavy currency. As far as I know the coin is still unique. I cannot say where it is now, but it belonged to the late Sir Denzil Ibbetson. Full tankas of Gobindpūr mint are in the Cabinet of Mr. H. Nelson Wright.

The dām was identical in weight with the half tanka, but in only one case does the dām currency bear its denomi-

national epithet—see the second volume of the new Lahore Museum Catalogue, p. 94. Double dāms, corresponding in weight and size with the full tankas, are even rarer. I can refer numismatists to three specimens. A heavy dām of Islām Shāh Sūri was published in Mr. H. Nelson Wright's paper 'The Coins of the Pathan Sultans of Dehli', J. R. A. S., 1900.

There is a double dām of Jahāngīr of Bairāta mint in the Cabinet of Mr. H. Nelson Wright. The third specimen is the Shāh Jahān coin of Lucknow mint in the Indian Museum. Each of these three coins is unique as far as I know.

The mint of a rupee of Shāh 'Ālam II in the Bleazby Collection, dated 1218 A.H., 45 R., was tentatively read as Dāru-z-ẓafr Zainābād. A duplicate already existing in the British Museum had been labelled Sirdhana by Prinsep without any further remark. Sirdhana is in the Meerut District, and belonged at one time to the Begam Somru. Perhaps readers familiar with the locality and the period can throw further light on the matter.

It may be stated as a general rule that the Mughal copper currency was quite different in type, weight, and size from that in gold and silver. Yet we occasionally get pieces in copper struck from silver dies. These may have been intended to satisfy a temporary or urgent need, or were trial pieces. Or it is possible that some were at one time plated. The Burhānpūr copper coin of Jahāngīr and the Tatta copper piece of Muḥammad Shāh are really copper rupees. Several of the copper issues of Shāh 'Ālam II are of the silver type, e.g., pieces of Murādābād and Mūminābād-Bindraban mints.

On p. xxxv of the new Lahore Museum Catalogue, volume two, I wrote that I did not know of the existence of largesse money bearing the denominations *khair qabūl*, or *nūr afshān*, from the Aḥmadābād mint. I have since found that Dr. G. P. Taylor possesses a beautiful little Ahmadābād *khair qabūl*.

While the proofs of this paper have been passing through the Press, I am able to supply the following supplementary information.

P. 453. *Column* Ausā, Æ, *line* 16, insert Kot. (Collection of Mr. C. E. Kotwall, Bombay).

P. 454. The copper coins of Elichpūr mint are in general shapeless and dateless pieces of poor workmanship, and almost invariably display only a part of the complete legend. Major Wolseley Haig recorded a note on a large find of Elichpūr copper coins, and attributed them to the reigns of the emperors denoted in the Table. I have scrutinised the plate illustrating his paper, and where dates are absent am not convinced that the coins should be attributed to so many reigns. I have entered the coin of Shāh Jahān on the sole authority of the Leggett Sale Catalogue.

P. 457. *Column* Barelī, AV, *line* 8, insert J. P. (see above).

P. 467. *Column* Purbandar, AV, *line* 11, insert W. Mr. R. Burn also possesses a specimen.

P. 469. *Column* Toragal, AV, *line* 16, insert W.

P. 489. *Column* Sūrat, AV, *line* 9, insert P. L. (see above).

P. 516. *Column* Murādābād, Æ, *line* 24, insert P. L. (see above).

At the Annual Meeting of the Numismatic Society of India held at Lucknow on the 29th January, 1915, Mr. Panna Lal, I.C.S., exhibited an unusually fine rupee of Akbar of Pattan mint, which showed that the correct marginal inscription is Dar Shahr Anharwāla Pattan. Pattan rupees of Akbar were first published by Lt.-Colonel Vost, I.M.S., in N.S. XI. He had not good specimens to work upon, and read the mint name as Naharwāla Pattan.

R. B. Whitehead.

148. Two Mughal Copper Coins.

A. *Shāh Jahān.*

Metal—copper.
Mint—Ilahābād.
S. ·7 inches = 1·9 centimetres.
W. 315 grains.
Date 1049 A.H.

Obverse

شاہ جہا
ے
فلوس

Reverse

الہ ابا [د]
ضر ۰ ۴۹

An Ilahābād copper coin of Shāhjahān is mentioned in Dr. White King's sale catalogue.

B. *Farrukhsiyar.*

Metal—copper.
Mint—Shāh [jahānābād] ?
S. ·8 inches = 2·1 centimetres.
W.
Provenance—Murādābād.

Obverse

بادشا ...

فرخ سیر ...

Reverse

شا ....

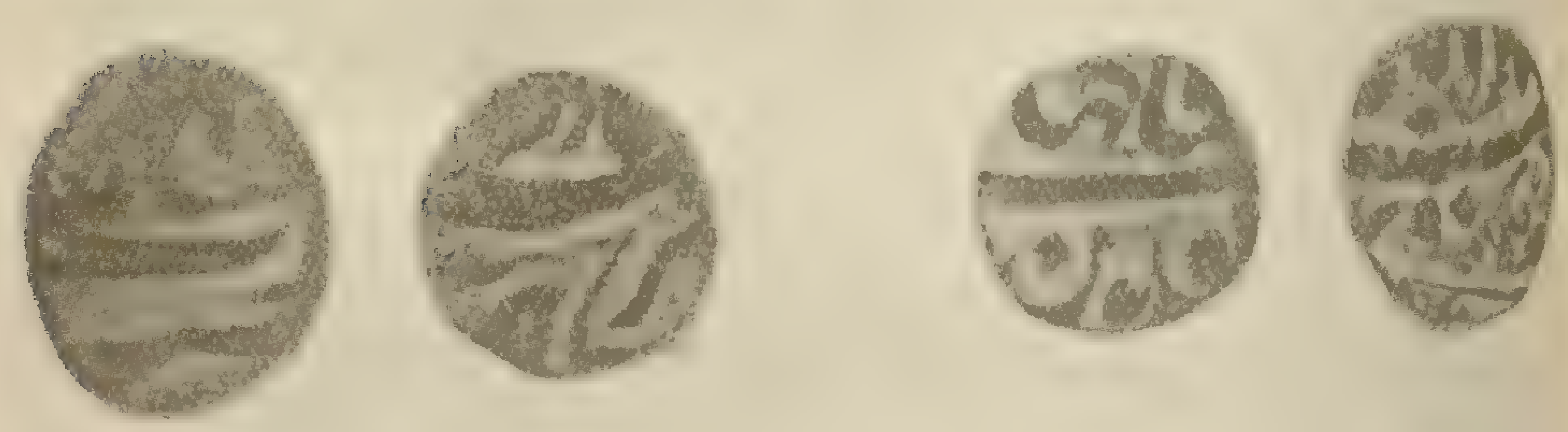
ضرب

Copper coins of Farrukhsiyar are known of Aḥmadābād, Akbarābād, Bījāpur, Sūrat, Sholāpūr, Kābul, Machhlīpattan, but none of Shāhjahānābād, though gold and siver coins of that mint are known.

This specimen is worn and only the word *Shāh* can be read. Other Mughal mints beginning with شاه are Shāhābād and Shāhgarh (Kanauj) neither of which are mints of Farrukhsiyar.

PANNA LĀLL, I.C.S.

B A



149. THE ZOROASTRIAN DEITY "ARDOSHR" OR "ARDVISHUR" ON INDO-SCYTHIAN COINS.

Dr. M. Aurel Stein in his admirable article on the 'Zoroastrian Deities on Indo-Scythian coins' published in 1887, London, has supplied us with very interesting descriptions of these coins.

Formerly there were a great many incorrect readings on these coins; for instance the legends KANHPKI, OOHPKI, KOPANO, PAO, PAO NANO PAO, etc., formerly read as Kanarki, Ooherki, Korano, Rao, Raonanorao, etc., now read as *Kanishka*, *Huvishka*, *Kosháno*, *Shá Sháhansháh*, etc.

Some of his readings are summarized as follows:—

MIOPO }
MIIOPO } = Mihr = Sun-god.
MAO = Máh = Moon-god.

OAΔO	= Vata = Vada = Wind-god.
AΘÞO AΘЈÞO	= Athsho = Fire-god.
OPΛAΓNO	= Verethraghna = War-god.
ÞAOPHOPO	= Shahrevar = genius of metals.
OANINΔO	= Vanainti = Female genius (star).
TEIPO	= Tír = Archangel representing 4th Zoroastrian month.
AÞAEIXÞO	= Ashaeikhsho = Ashavahishto. = Zoroastrian Archangel Ardibahisht.

Among some of the puzzling legends, Dr. Stein finds APΔOXÞO occurring on some of the Indo-Scythian coins. An idea has recently struck me that this legend can be read as *ardoshr* = *ardvishur* the female deity, goddess of sea, *Avan Ardshur.*

A P Δ O X Þ O

a r d u kh sh (*Izafat*).

I hope some numismatist will be able to throw further light on this suggestion.

FRAMJEE JAMASJEE THANAWALLA.

150. A NEW COUPLET MUHAR OF NÚRU-D-DIN JAHÁNGÍR, MUGHAL EMPEROR OF INDIA.

I have recently acquired a heavy round muhar of Jahángír, described below:—

Metal: Gold.
Mint: Agra.
Date: 1019 A.H., and year of reign 5.
Weight: 195 English grains.
Diameter: 1·05 inch.

FIG. 1.

Obverse :

In a multifoil flowered area enclosed in a double circle with dots between.

مهر ماه ے

شا بزر در

سکه

زد باگره

Reverse:

In area as on obverse.

بادشاه

اکـــــبر

نگیر ابن

جهـــــــا

نور الدین ه

۱۰۱۹

The couplet formed by the obverse and reverse legends runs thus:—

زد باگره سکهٔ شاهی بزر در مهر ماه

شاه نور الدین جهانگیر ابن اکبر بادشاه

Translation:

Struck in Agra the royal coin on gold in the month of Mihr.

(By) S͟háh Núru-d-din Jahángír, son of Akbar Báds͟háh.

This coin contains the word *Sikkah-î s͟háhí* which is not found on any of Jahángír's couplet muhars or rupees in published catalogues.

The coin is somewhat worn; hence the illustration is from a drawing, not from a cast.

FRAMJEE JAMASJEE THANAWALLA.

Bombay, 16th January, 1915.

151. The Lakhnau Mint.

[With Plates XIII-XV].

"Lakhnau is a large city on the banks of the Gumti, delightful in its surroundings," says Abu-l-Fazl, and indeed little more is to be said of it during Mug͟hal times. Its importance both as a city and a mint came later. Still this much we can gather from the scanty records of historians that, situated as it was in the most fertile province of Northern Hindustan, and standing away from the main roads between the capitals of the Empire, it was continually, like Jaunpur, the spot fixed upon by the disaffected "to raise the head of rebellion"—a back shop of sedition, a city of refuge for such as were under the ban of the court. The origin of the name has never been satisfactorily settled. Some would find it in an ancient village site Lachhmanpūr (Lakhshmanāvatī) supposed to have been founded by the legendary Lachhman, brother of Rām Chandra –near an orifice, within the present Machchhī Bhawan, which led down the abode of Sesnāg, a thousand-headed snake which supports the world on its head. The name Lachhman Tila (= Lachhman's Hill) survived until quite recent times.

Others prefer the derivation from Qila Likhna derived from an Ahír architect Likhna, who is supposed to have planned the fort for the Sheikhs who settled in the town in the 13th century. Both are almost certainly incorrect, but they point to the earliest site of the city. The earliest Muhammadan settlers came in the 13th century, the Sheik͟hs from Bijnaur, afterwards famous as the Sheik͟hzādas and the Qidwai Sheik͟hs of Jaggaur. In 1478 A.D. (884 A.H) died the most famous inhabitant of Lakhhau in pre-Nawabi times, Sheik͟h Muḥammad, alias Shāh Mīna, son of Sheik͟h Quṭub, pupil of a famous saint Sheik͟h Qiyāmu-d-din Ḥājī, who had arrived in Lakhnau in 1396. The name Mīnanagar, properly applied to a muhalla, was once applied to the whole city.

Lakhnau formed part of the dominions of the Sharqi Kings of Jaunpūr, but in the year of Shāh Mīna's death it was reconquered by Bahlol Lodī.

When Bābur entered India, his son Humāyūn captured the city in 1526 A.D. (933 A.H.) but abandoned it the same year, and it was recaptured by Bābur in 935-6 A.H. when the very interesting coin (No. 1) must have been struck. A legend relating to this period testifies to the size and wealth of the place; it is said that in 1540 A.D. (947-48 A.H.) when Humāyūn was retreating from Jaunpūr, he stopped four hours at Lakhnau, and that in that short time the Sheik͟hs collected for him Rs. 10,000 and fifty horses. Sher Shāh first instituted a mint for copper in Lakhnau, and the coining was continued by Akbar until at least as late as the thirty-seventh year of his reign, 1000 A.H. During the early years of the reign the

intrigues of[1] 'Alī Qulikhān, the Khān Zamān, were carried on in the district, though there is no record of the emperor's having visited the city in person until 971 A.H. (1563-64 A.D.) when he was engaged in quelling the revolt of Sikandar Khān Uzbek. He is said to have taken a liking to the city and to have had several muhallas built south of the Chauk, one of the gates of which is still known as the Akbarī Dārwāza. For about ten years Lakhnau continued to be disturbed by the restlessness of Sikandar Khān and Husain Khān Tukriya, some time governor. But in 980 A. H. the former "laid his head on the pillow of mortal sickness and departed this life" and three years later peace appears to have been restored.

From this time onwards until the Nawābī Lakhnau is scarcely mentioned in the official annals or the pages of historians. From time to time a member of the famous Shaikh family rose into prominence, such as Shaikh Abdur-Rahīm, "an officer of Akbar and an associate of Shaikh Jamāl Bakhtyar whose sister Akbar took to wife."[2] Abdur Rahīm was made a commander of seven hundred in the reign of Jahāngīr and died in Lakhnau. In 993 (1584) Mir Abū-l-Ghais of Bukhāra was given a jāgīr near Lakhnau and died of colic in the city two years later.[3] Such were the events which alone served to enliven the tedium of life in the little town during the sixteenth and seventeenth centuries. Sūbahdārs, unless, like Jawāhir Khān at the end of Akbar's reign, they were inhabitants, dīd not reside in Lakhnau. It is usually joined with Baiswāra, the two forming a Sarkār under the control of a faujdār. Such a faujdār was Nizām Murtaza Khān, son of S'adi Jahān of Pihānī, who was pensioned off in the twenty-fourth year of Shāh Jahān's reign.[4] In this reign the mint was occasionally worked, one gold, a few silver and a few copper coins being known. From the nineteenth[5] year of Aurangzeb until early in the reign of Muhammad coins issued regularly from Lakhnau, after which its place was taken first probably by the Akhtarnagar Awadh Mint (Lakhnau or Faizābād) and later by the Banāras mint which for many years was under Nawābī control.

It was probably in the twelfth year of Aurangzeb, when a general order was issued for the destruction of idols and temples throughout the empire, that the old Hindu shrine in Lachhman Tīla was destroyed and a mosque built over the site. Legend tells of a visit by Aurangzeb in person, but there is no record in the annals or the letters of Aurangzeb that either Shāh Jahān

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[1] Al-Badāonī, Vol. II, p. 14.

[2] M'āsir-ul-umara II, 564.

[3] Al-Badāonī, Vol. II, pp. 358-74.

[4] Ain-i-Akbari I, p. 469.

[5] Since this was written I have found a coin of the 14th year in the Lucknow Museum.

or his son were ever in or near Lakhnau.[1] The Khulāsatu-t-tawārīkh (circ 1695) and the M'āsiru-l-umara (circ 1750) give the most meagre accounts of the city, and indeed it appears that "the Lakhnau-Baiswāra district was notorious for the lawlessness of its zamīndārs towards the close of the 17th and during the first seven years of the 18th century: taking advantage of the Emperor's long absence in the Deccan and his endless war with the Marāthas, every petty chieftain, village headman, and captain of roving Afghān brigands, seized villages, looted property and defied the local authorities. A few were put down after their mud forts had been besieged and stormed."[2]

Table showing the coins issuing from the Lakhnau Mint.

	AV	AR	Æ
Bābur		×	
Sher Shāh Sūrī			×
Akbar		×	×
Shāh Jahān	×	×	×
Aurangzeb		×	×
Shāh 'Ālam I		×	
Jahāndār		×	
Farrukhsiyar		×	
Rafī'u-d-darjāt		×	
Shāh Jahān II		×	
Muhammad		×	

[1] On the information of Mr. J. N. Sarkar, who has also kindly given me much information on the history of Lakhnau in the 16th and 17th centuries.

[2] J. N. Sarkar.

The Coins.

BABUR.

Æ

	Obverse :	Reverse :
1. Year 936—	In circle :—	Within ornamented oblong border.
W. ?		
S. 1·0	لا إله إلا الله	٩٣٦
	محمد	ظهير الدين محمد بابر
	رسول الله	بادشاه غازي
	Margin in segments divided by ornaments :—	Above—
		[السلطا] ن الاعظم خاقان
	ابوبكر الصديق	[المكرم]
	عمر الفاروق	
		Below :—
		[خلد] الله تعا[لى] ملكه لكهنو
		[و] سلطانه ضرب

This coin was in the White-King collection: it now belongs to M. Zouboff of Moscow, who very kindly sent me a cast of it.

SHER SHAH SŪRI.

Æ

	Obverse :	Reverse :
2. Year—	في عهد	ابو المظفر
Wt. 319	الامير الحامي	شاه سلطان
S. ·9	الدنيا ن الدين	شير
	فريد و	ضرب خلد الله
		لكهنو ملكه
		I. M. C. (ii 712).

AKBAR.

Æ

	Obverse :	Reverse :
3. Year 963—	....	سنه
Wt. 310		شصت
S. 85	فلوس	نهصد
	ضرب لكهنو	في تاريخ

M. under س — P. M.

Years 963	M. X on reverse	L. M.
966		I. M.
967	M. ✡ on reverse	L. M.
967	No. M.	I. M.

Note on Coin No. 3.—I have discovered two coins in the Lucknow Museum figured in the plate as 3*a*, 3*b*. which give two different readings for the obverse. Both appear to be of 967 A.H. 3*a* reads خطه above فلوس. 3*b* reads what I take to be سرکار or possibly سرکاری : the latter is an entireiy new epithet.

Æ		
Year 96—	*Obverse :*	*Reverse :*
Wt. 159	as No. 3	as No. 3.
S. ·7		but final figure missing-
½		M. X over نهصد
		H. N. W.

5 Year 981	*Obverse :*	*Reverse :*
W. 292	لکهنو	یک و
S. ·8	فلوس	هشتاد و
	ضرب	نهصد
	M. in س	سنه
		۹۸۱
		H. N. W.

6. Year 983	*Obverse :*	*Reverse :*
Wt. 320	دار الخلافة	و ....
S. ·9	فلوس	هستاد
	لکهنو	نهصد و
	ضرب	سنه فی
		۹۸۳
	M	M
		I. M.

Years 975	..	L. M.
977	..	L. M.
982	..	I. M. (312·5)
984	..	P. M. (318)

		Obverse	Reverse
7.	Year 984 Wt. 316 S. ·9	*Obverse :* as No. 6 but ضرب لکهنو M ۷۷ in س 	*Reverse :* و چهار هشتاد نهصد و سنهٔ فی [۹۸۴] P. M.
		Years 985	I. M. (317·5)
		985 on obverse	L. M.
		986	I. M. (320·5)
		987	C. J. B.
		988 on obverse	P. M.
		989 ?	L. M.
8.	Year 984 W. 157 S. 7 ½	*Obverse :* as No. 7 No. M.	*Reverse :* as No. 7. H. N. W.
9.	Year 1000 W. S. 9	*Obverse :* as No. 7	*Reverse :* الله [اکبر] هزار سنهٔ فی ۱۰۰۰ M. Zouboff.

SHĀH JAHĀN.

AV.

		Obverse	Reverse
10.	Year 1051— 15 R. Wt. 167 S. .85	*Obverse :* In area of dots with knots at corners :— The Kalima and ۱۰۵۱ in lower left corner *Margins.* top بصدق ابي بكر right و عدل عمر lower بارزم عثمان left و علم على	*Reverse :* In area of dots with knots at corners :— بادشا غازی ۱۵ شاه جهان *Margins.* left شهاب الدين top محمد صاحب right قران ثاني bottom ضرب لكهنو P. M.

This is the only gold coin known at present from the Lakhnau Mint.

Æ.

11. Year 1055—19 R.	*Obverse :*	*Reverse :*
Wt.	as No. 10 but ۱۰۵۵	as No. 10. but ۱۹
S.	marginal inscriptions start at the left margin.	

I have a rupee, probably of 1054, in which the marginal inscription on the obverse starts from the bottom margin.

H. N. W.

Æ.

12. Year—5 R.	*Obverse :*	*Reverse :*
Wt. 610	بادشاه غاز ے	....
S. 1·1	شاه جهان	سنه
	۵	لکهنو
	سنه	ضرب

I. M.

This is the oniy tanka known of Shāh Jahān.

13. Year 104—	*Obverse :*	*Reverse :*
W. 309·5	شاه جها ن	۱۰۴-
S. 85	فلوس	سنه
		لکهنو
		ضرب

I. M.

14. Year 1049	*Obverse :*	*Reverse :*
W. 151	as No.13	as No. 13.
S. ·65		but ۱۰۴۹.
$\frac{1}{2}$		

C. J. B.

15. Year —۱—	*Obverse :*	*Reverse :*
W. 309·5	شاه غاز ے	....
S. ·8	جهان باد	لکهنو
	شـــــا [ه]	ضرب
		فلوس

Trace of date above لکهنو.

C. J. B.

c.f. also Rodgers' Mughal Coins, J. A. S. B. 1895, No. 141.

AURANGZEB.

Æ.

		Obverse:	Reverse:
16.	Year—19	عالم گیر	مانوس
	Wt. 185	اورنگ زیب	میمنت
	S. 8.	شــــــاه	۱۹
		زد چو بدر منیر	سنه جلوس
		ســــــکه	ضرب
		در جهان [۱۰۸۷]	لکهنو

I. M.

(*a*) Years			*b.* date over جهان.		
——14	R.	L. M.	1088—20	R.	I. M.
1087—19	R.	L. M.	1089—21	R.	L. M.
1088—20	R.	I. M.			
1096—28	R.	L. M.			
1099—31	R.	L. M.			
1101—33	R.	I. M.			
1101—34	R.	L. M.			
1102—34	R.	L. M.	*c.* date under نگ.		
1102—35	R.	L. M.	1094—26	R.	L. M.
1103—35	R.	L. M.	1095—27	R.	L. M.
1103—36	R.	L. M.	1096—29	R.	L. M.
1104—37	R.	L. M.	1097—29	R.	L. M.
1105—38	R.	L. M.	1098—30	R.	I. M.
and onwards—last date			1098—31	R.	L. M.
known 1116 (۲)			1100—32	R.	L. M.
—48	R.	L. M.			

Coins of 50 R. and 51 R. are also known but with the Hijra year missing.

Æ.

		Obverse:	Reverse:
17.	Year—	.....	.....
	W. 210	سنه	سنه
	S. ·7	مبارک	لکهنو
		جلوس	ضرب

Rodgers' Mughal Copper Coins. No. 65. J. A. S. B. 1895.

This reading of Rodgers is very doubtful.

SHĀH 'ĀLAM I.

Æ.

18. Year—aḥd
Wt. 160 (worn)
S. ·9

Obverse:
غازي
شـــاه
شاه عالم
ســـــكه
.....

Reverse:
مانوس
ميمنت
احد
سنه جلوس
ضرب
لكهنو

I. M.

Years	1119	aḥd	P. M.
	—	2	I. M.
	—	3	C. J. B.
	—	4	I. M.

JAHĀNDĀR.

Æ.

19. Year 1124—aḥd
Wt. 174
S. 85

Obverse:
صاحبقران
۱۱۲۴
جهـــــا
جهاندار شه بادشاه ن
ســـكه
بزد برمه چو

Reverse:
ما نوس
ميمنت
سنه احد جلوس
ضرب
لكهنو

I. M.

FARRUKH SIYAR.

Æ.

20. Year 1125—2 R.
Wt. 175
S. ·9

Obverse:
زد از ۲۵ [فضل حق] ۱۱
شـــــــــاه
باد بحر و بر فرخ سير
ســـــكه
برسيم و زر

Reverse:
ما نوس
ميمنت
۲
سنه جلوس
ضرب
لكهنو

I. M.

Years	1124	aḥd	L. M.
	1125	2 R. (زد in second line)	H. N. W.
	1126	3 R. (زد in last line)	P. M.
	1127	4 R. ,, ,,	L. M.
	1128	5 R. ,, ,,	P. M.

21. Year 1130 7 R.

Obverse :

بحر و بر فرخ سیر
بادشـــــاه
حق بر سیم و زر
فضــــل ۱۱۳۰
سکه زد از

Years 1031 8 R.

Reverse :

as No 20.
but ۷

C. J. B.

RAFĪ'U-D-DARJĀT.

Æ.

22. Year 1131 aḥd

Obverse :

۱۱۳۱ رفیع الدرجا
ت
درکا شاهنشه بحر و بر
ت
زد سکه بهند با هزاران

Reverse :

مانوس
میمنت
احد
سنه جلوس
ضرب
لکهنو

C. J. B.

SHĀH JAHĀN II.

Æ.

23. Year 1131 aḥd

Obverse :

شاه جهان
ے
بادشاه غاز
سـکه
مبارک ۱۱۳۱

Reverse :

مانوس
میمنت
احد
سنه جلوس
ضرب
لکهنو

P. M.

MUḤAMMAD.

Æ.

24. Year 1132 aḥd

Obverse :

محمد شاه
ے
بادشاه غاز
سـکه
مبارک ۱۱۳۲

Reverse :

مانوس
میمنت
احد
سنه جلوس
ضرب
لکهنو

P. M.

Years 1132—2 R. L. M.
1133—2 R. P. M.

25. Year 1135—5 R.

Obverse:
محمد شاه
ـــــے
بادشاه غاز
کـــــ
سکه مبار ۱۱۳۵

Reverse:
as No. 24.
but ه

26. Year 1135—5 R.

Obverse:
as No. 25

Reverse:
مانوس
میمنت
ه
جلوس سنه
ضرب
لکهنو

H. N. W.

Appendix.

The following coin from Mr. Nelson-Wright's cabinet is ascribed to the Lakhnau mintage: but the name is not quite sufficiently clear in my opinion, without corroborative evidence, to warrant its being included in this catalogue.

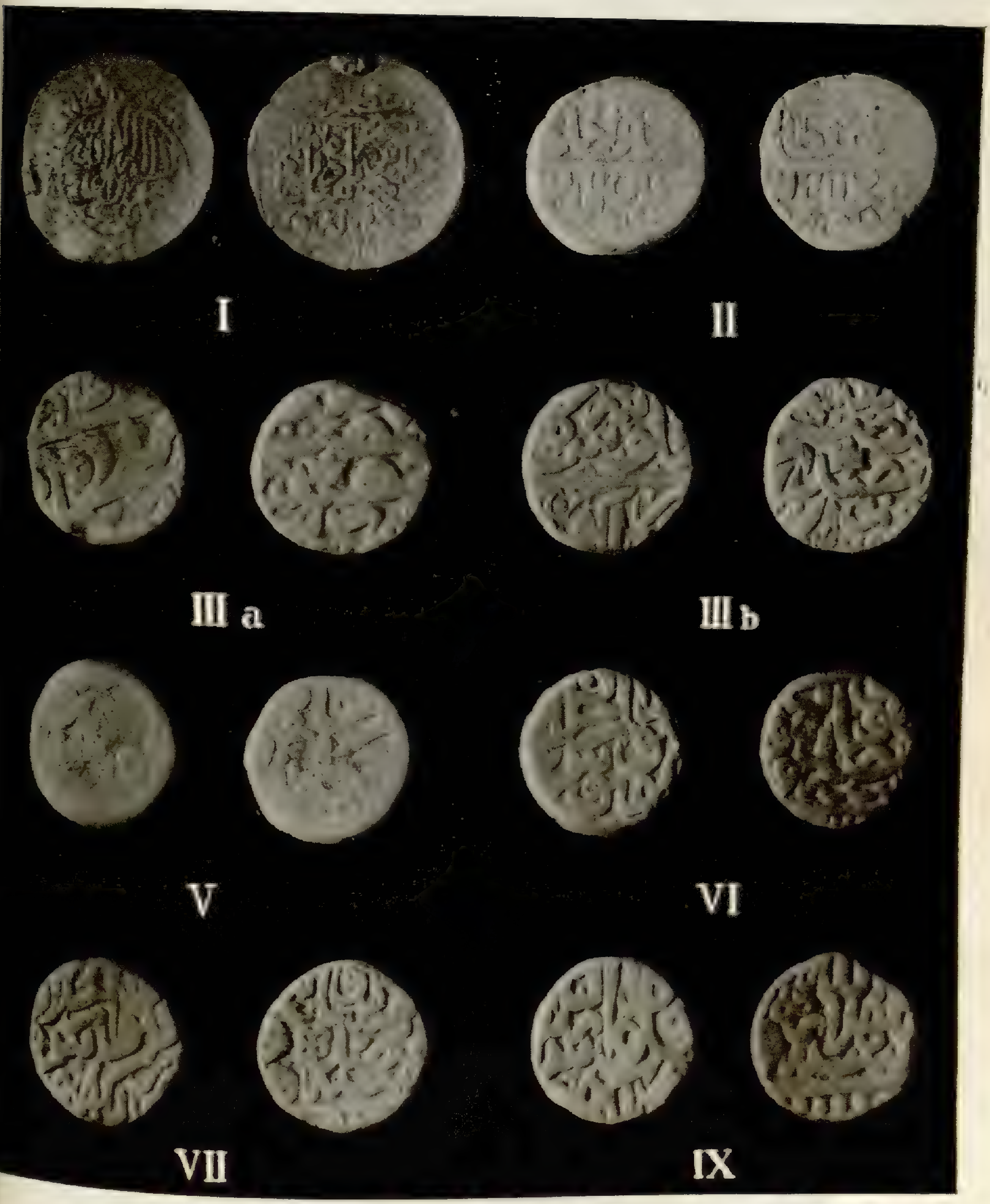
27. Year 967
S. 1·5
(ringed)

Obverse:
In square with knots at corners :—
The Kalima
(Suri arrangement.)
Margins (*reading outwards*) top :— بصدق ابی بکر
right :— بعلم علی
......

Reverse:
In square :—
اکبرباد ی
شاه غاز
محمد
جلال الدین
۹۶۷ reading upwards and inwards over
جلا
Margins: left تعالی ملکه
lower:
سلط ضرب لکهـ [نو]

Note.—Since writing the above the corroborative evidence has been found in a coin belonging to the Lucknow Museum (No. 27*a* in Plate). It supplies the final و of لکهنو. It is similar in fabric to Mr. Wright's coin except that it has a rosace as a Mint Mark on the obverse and is of the date 968 A.H.

Lucknow, 1915. C. J. Brown.



THE LAKHNAU MINT COINS. ART. 151.

THE LAKHNAU MINT COINS. ART. 151.

THE LAKHNAU MINT COINS. ART. 151.

JULY, 1915.

The Monthly General Meeting of the Asiatic Society of Bengal was held on Wednesday, the 7th July, 1915, at 9-15 P.M.

Lieut-Colonel Sir LEONARD ROGERS, Kt., C.I.E., M.D., B.S., F.R.C.P., F.R.C.S., F.A.S.B., I.M.S., President, in the chair.

The following members were present :—

Maulavi Abdul Wali, Dr. N. Annandale, Mr. H. G. Carter, Mr. F. H. Gravely, Mr. J. Insch, Mr. S. W. Kemp, Dr. S. C. Vidyabhusana.

Visitors :—Mr. D. N. Carter and Mr. F. Cotta.

The minutes of the last meeting were read and confirmed.

Fourteen presentations were announced.

1. The General Secretary reported that the Hon'ble Mr. H. F. Samman had expressed a desire to withdraw from the Society.

2. The General Secretary reported the death of Mr. H. S. Bion of the Geological Survey of India.

3. The following gentlemen were proposed as Honorary Fellows :—

Prof. Paul Vinogradoff, F B.A., D.C.L. (Oxford), LL.D. (Cambridge, Harvard, and Liverpool).

Mr. Jean Geston Darboux, Membre de L'Institut, Secrètaire perpetuel de L'Academie des Sciences, Doyen honoraire de la Faculte des Sciences, Membre du Bureau des Longitudes, Honorary Doctor of Science of Cambridge and Doctor of Mathematics of Christiania, Past President of the Mathematical Society of France, Honorary Member of the Manchester Literary and Philosophical Society and of the London Mathematical Society.

Sir Patrick Manson, G.C.M.G., M.D. (Aberd.), LL.D. (Aberd.), F.R.C.P., Honorary D.Sc. (Oxon).

Sir Joseph John Thomson, Kt., O.M., M.A., Sc.D. (Dublin), D.Sc. (Oxford, Columbia, Johns Hopkins, Victoria), LL.D. (Glasgow, Aberdeen, Princeton, Birmingham, St. Andrews, Göttingen), Ph.D. (Cracow, Christiania), F.R.S.E.

Sir William Turner, K.C.B., M.B. (London), D.C.L. (Durham, Toronto and Oxford), LL.D. (Glasgow, St. Andrews,

Aberdeen, Western University, Pennsylvania and McGill University), Sc.D. (Cambridge and Dublin), F.R.C.S. (London and Edinburgh), F.R.S.E.

The following papers were read:—

1. *Portuguese Losses in Indian Seas* (1629-1636). *Translated by* MR. F. COTTA.

2. *Situhi-Sum-rtag: the first work on Grammar in the Tibetan Language* (7*th Century* A.D.).—*By* DR. SATIS CHANDRA VIDYABHUSANA.

This paper has not yet been submitted for publication.

The President announced that there would be no medical meeting during the month.

AUGUST, 1915.

A Monthly General Meeting of the Asiatic Society of Bengal was held on Wednesday, the 4th August, 1915, at 9-15 P.M.

LIEUT.-COLONEL SIR LEONARD ROGERS, Kt., C.I.E., M.D., B.S., F.R.C.P., F.R.C.S., F.A.S.B., I.M.S., President, in the chair.

The following members were present :—

Maulavi Abdul Wali, Mr. A. K. M. Abdus Subhan, Babu S. C. Banerji, Dr. P. J. Bruhl, Dr. B. L. Chaudhuri, Mr. F. H. Gravely, Syed Abdullah-ul-Musawy, Dr. Satis Chandra Vidyabhusana.

The minutes of the last meeting were read and confirmed.

Twenty-five presentations were announced.

1. The Hon. Secretary reported the receipt of the gift of the oriental books made to the Society by Mrs C. B. N. Cama.

2. The General Secretary reported that Messrs. K. P. Jayaswal, S. R. Kumar, I. M. Mullick, J. H. Simpson, C. S. Taylor, Garfield Williams and the Hon'ble Justice A. Chaudhuri had expressed a desire to withdraw from the Society.

3. The General Secretary also reported the death of Mr. E. D. M. Humphries and Capt. J. G. L. Ranking.

4. The following gentlemen were balloted for as Honorary Fellows :—

Prof. Paul Vinogradoff, F.B.A., D.C.L. (Oxford), LL.D. (Cambridge, Harvard, and Liverpool).

Mr. Jean Geston Darboux, Membre de L'Institut, Secretaire perpetuel de L'Academie des Sciences. Doyen honoraire de la Faculte des Sciences, Membre du Bureau des Longitudes, Honorary Doctor of Science of Cambridge and Doctor of Mathematics of Christiania, Past President of the Mathematical Society of France, Honorary Member of the Manchester Literary and Philosophical Society and of the London Mathematical Society.

Sir Patrick Manson, G.C.M.G., M.D. (Aberd.), LL.D. (Aberd.), F.R.C.P., Honorary D.Dc. (Oxon).

Sir Joseph John Thomson, Kt , O.M., M.A., Sc.D. (Dubl.), D.Sc. (Oxon, Columbia, John Hopkins, Vict.), LL.D. (Glasg.,

Aberd., Princeton, Birm., St. And., Gott.), Ph.D. (Cracow, Christiania).

Sir William Turner, K.C.B., M.B. (Lond.), D.C.L. (Durh., Toronto and Oxon), LL.D. (Glasg., St. Andr., Aberd., Western Univ. Pennsylvania and McGill Univ.), Sc.D. (Camb. and Dubl.), F.R.C.S. (Lond. and Edin.), F.R.S.E.

5. The following gentleman was balloted for as a candidate for Ordinary Member :—

C. W. Gurner I.C.S., U.S. Club, Calcutta, proposed by Mr. F. H. Gravely, seconded by the Hon'ble Justice Sir Asutosh Mukherjee, Kt.

6. The following papers were read :—

1. *On North Indian Charms for securing Immunity from the Virus of Scorpion-Stings.—By* S. C. MITRA.

2. *A Note on the Terai Forests between the Gandak and the Tista.—By* I. H. BURKILL.

This paper will be published in a subsequent number of the Journal.

3. *The Origin and Distribution of the Fauna of the Lake of Tiberias.—By* N. ANNANDALE.

This paper will be published in a subsequent number of the Journal.

4. *A Botanical Curio.—By* S. C. BANERJI.

A huge epiphytic *Ficus bengalensis*, L. on a tall *Borassus flabellifer*, L. is to be found in the village Barā on the way to Pāthrole from Madhupur (Sonthal Parganas). The two together appear to be a composite tree. One-half of the height of the Palm from the ground, excepting a small portion at the base, is completely encased by the root of the fig. The persistence of the epiphytism is interesting.

The President announced that there would be no medical meeting during the month.

17. Palaeontological Notes from Hazara.

By H. C. Das-Gupta, M.A., F.G.S.

[With Plate XVI.]

The fossils that are described here were obtained during a trip I had an opportunity of undertaking in the year 1911 with a party of students from the Presidency College, Calcutta. A complete account of the geology of the place was published by Mr. Middlemiss[1] in 1896, with a comprehensive list of the literature on the subject, and practically nothing has been heard regarding the geology of this area since that date. I had had the special privilege of receiving some valuable instructions from Mr. Middlemiss before I left, and if this short note of mine adds anything, however insignificant it may be, to our knowledge of the geology of Hazara, it is mainly owing to these instructions. The fossils were collected in different localities and they will be dealt with according to the age they are characteristic of.

A. Triassic.

The occurrence of some fossiliferous grey shales between the Trias limestone and the quartzite, on the road passing by Bugntour, was already noticed by Mr. Middlemiss.[2] In the absence of any good and determinable fossils the age of these shales could not be definitely established. We also could not get any fossils from these shales, but just near the boundary between these shales and the overlying limestone and occurring in the limestone some fossils were obtained which may be briefly recorded here. These fossils include :—

1. *Megalodon* sp *cf. pumilus*, Gümbel.—This is represented by one specimen sufficiently fairly preserved for an attempt at a specific diagnosis. It is evidently quite distinct from the two species of *Megalodon* (*M. cultridens* and *M. ladakhensis*) described from the upper Trias of the Himalayas.[3] The specimen is, however, very much like the liassic *Megalodon pumilus*, Gümbel, described and figured by Hoernes.[4] This comparison is based on the sharp curving-down of the beak and on the dimensions. Regarding the dimensions of

[1] Mem., Geol. Surv. Ind., Vol. XXVI, pp. 1-302.
[2] Op. cit., p. 29.
[3] Pal. Ind., Ser. XV, Vol. III, pt. 2, pp. 62-66, with plates.
[4] Denkschr. d. k. Akad. Wien, XLII, Abt. 2, p. 107, taf. 1, figs. 10-12.

this species Hoernes says "Die Längendimension dieses Gehäuses betragt 55 mm., die Dicke bei vereinigten Klappen 45 mm.", while the corresponding dimensions from the Hazara specimen are 30 mm. and 25 mm. (See pl. xvi, fig 3).

2. *Pecten* sp *cf. Sanderbergeri*, Klipst.—One species of *Pecten* obtained from these beds agrees very well with *Pecten Sanderbergeri*, Klipst., obtained from the Alpine Trias,[1] both as regards the size and the general outline—the only essential difference consists in the fact that the ribs of the Hazara specimen are all of the same strength, while in *P. Sanderbergeri* some of the ribs are strong while others are weak. (See pl. xvi, fig. 5.)

Besides these two species mentioned above the collection includes a very small ammonite and a highly vaulted lamellibranch resembling a *Vola*.

B. Jurassic.

The next series of fossils were obtained from the Spiti shales developed at Kalapani on the Thandiani road. Mr. Middlemiss does not mention the occurrence of any fossil in this northern section of the Hazara Jurassics, and the following were collected by the Presidency College party :—

1. *Pseudomonotis* sp.—This is represented by a single slightly inflated valve. Two species of *Pseudomonotis* have already been described from the Spiti shales by Dr. Holdhaus[2]; but the Kalapani species is entirely distinct, as shown by its fine concentric striations. I was unable to refer it to any of the previously described species of *Pseudomonotis* and it is apparently related to the group of *Pseudomonotis Clarai*, one of the five groups established by Bittner[3] for the Triassic species of this genus. It is noteworthy in this connection that the three known species of *Pseudomonotis* from the Himalayan Trias viz. *P. Griesbachi* Bittn., *P. painkhandhana* Bittn., and *P. decidens* Bittn., are also included in this group by a very marked preponderance of the concentric sculpturing.

2. *Aucella spitiensis* form type Holdh.—The occurrence of this genus in the Kalapani shales is interesting, as representatives of this genus have already been recorded by Stoliczka[4] and Holdhaus[5] from the typical Spiti shales. The species under description is an extremely small one, much smaller than any that has been described from the Spiti

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[1] Abhandl. d. k-k. Geol. Reich. Vol. XVIII, p. 157, tab. XVIII, figs. 31, 32.
[2] Pal. Ind., Ser. XV, Vol. IV, pt. 2, fasc. 4, pp. 401-404, with plates.
[3] Jahrb. k.k. Geol. Reichst. Vol. L, pp. 559-592.
[4] Mem., Geol. Surv. Ind., Vol. V, p. 88. 1866.
[5] Op. cit., pp. 404-415.

shales, and very likely the specimens represent some immature forms of *Aucella spitiensis* form type Holdh.[1] The geographical distribution of *Aucella* has been dealt with by Pompeckj,[2] and according to his description the migration of *Aucella* into the Spiti-Himalaya must have been over South-Eastern Russia—die Aralokaspische Senke—in Kimmeridgian and Tithonian times in a south-easterly direction. The occurrence of *Aucella* in the beds of Hazara is in exact conformity with this hypothesis, as also with the direction of migration indicated by him. According to Pompeckj this migration must have taken place during Kimmeridgian and Tithonian times, a theory very much corroborated by the occurrence, in the overlying beds, of the well-known Tithonian fossil *Perisphinctes* (*Virgatosphinctes*) *frequens*.

3. *Inoceramus*, sp. 1 and sp. 2.—*Inoceramus* is most abundantly represented in these shales, but unfortunately not a single perfect specimen could be obtained. A number of species of *Inoceramus* has been described from the Spiti shales by Dr. Holdhaus,[3] all of which are specifically distinct from the specimens obtained near Kalapani and, as far as can be made out from the nature of the ribbing, it appears that there are two distinct species present, one being more coarsely ribbed than the other.

Besides these fossils mentioned above the collection also includes several casts of *Cardium*, sp.

C. Gieumal Sandstone.

The specimens were all obtained from the Gieumal sandstone overlying the Spiti shales and developed near Kuthwal and they include the following:—

1. *Arca* sp. cf. *Egertoniana* Stoliczka.[4]—Only one species of Arca—*A. Egertoniana*—has been recorded from the Spiti area, and the present species, though agreeing with the one previously described in the nature of the ribbing, is much higher. It may be mentioned, however, that according to Holdhaus some specimens of *A. Egertoniana* are labelled Gieumal.

2. *Corbula Middlemissii*, n. sp.—This genus has been already recorded from the Spiti shales of Chumbi peak,[5] but not from the Gieumal sandstone. The shell is rather large, triangular, high and markedly inequivalve. The margins are well-rounded; the umbones promiment, broad and curved

[1] Op. cit., p. 410, pl. xcvii, figs. 8-11.
[2] Neues Jahrbuch für Min. Geol und Pal,, Beilage-band, XIV, 1901, pp. 319 368.
[3] Op. cit., pp. 415-421, with plates.
[4] Holdhaus, op. cit., pp. 434-438, with plate xcv, figs. 1-10.
[5] Mem., Geol. Surv. Ind., Vol. XXVI, p. 34.

down. The left valve is badly preserved, but the right valve is very coarsely sculptured. No carina is present. The length and the height of the shell are nearly the same, being each equal to 21 mm. The present species, as regards its sculpturing, is very nearly allied to *Corbula Raimondi*, Gabb,[1] from which, however, it can be at once distinguished by its difference in form. *Corbula striatula*, Sowerby [2] agrees slightly with it regarding the general outline of the bigger valve, but differs from it markedly in being strongly inequivalve and coarsely sculptured. (See pl. xvi, fig. 4.)

3. *Perisphinctes* (*Virgatosphinctes*) *frequens*, Oppel.—This fossil has hitherto been recorded only from the typical Spiti shales whether in the Spiti area or in the neighbourhood of the Changla gali in Hazara—but not from the Gieumal beds. This species is rather abundant in the area, and in the Presidency College collection there is one specimen presumably of this species which has a marked elliptic shape possibly due to accidental circumstances.

D. Tertiary.

Besides *Montlivaltia* (near Nagakki) and *Echinolampas* (near Hasan Abdal), already mentioned by Mr. Middlemiss,[3] the tertiary beds near Hasan Abdal yielded one specimen belonging to the *Poritidae*, while from the Tertiary beds developed near Kuthwal one specimen of *Nautilus* was obtained, a description of which will bring this short note to a close.

(1) *Nautilus hazaraensis*, n. sp.

The specimen is very much depressed and of medium size, the diameter being about 70 mm. It is umbilicated with a very small umbilicus of about 7 mm. diameter. The margin is rounded: the mouth is semi-elliptic with a sub-ventral siphuncle. The septa are numerous and very flexuous. Beginning from the umbilicus and at a very short distance from it they show a small acute curve pointed anteriorly; then they are curved back posteriorly, these curves being now quite broad, and finally they pass over the margin in a small, shallow, anteriorly directed curve.

This species is very closely related to *N. Forbesi*,[4] D'Arch. and Haime, but can be distinguished from it by the fact that the margin of *N. Forbesi* is much broader with a little larger

[1] N. J. f. Min. Geol. u Pal. Beilage-band, Vol. XI, 1897-98, pp. 113-114, taf. II, figs. 15*a*, *b*.

[2] Mon. Pal. Soc., Vol. LXXII—the cretaceous Lamellibranchiata, p. 212, with plate.

[3] Op. cit., pp. 39, 41, 42.

[4] Descr. Anim. l'Ind., p. 338, pl. xxxiv, figs. 12, 12*a*.

siphuncle. In the present species the septa, on the other hand, are more closely set.

This specimen was collected by Mr. Phanindranath Mukherjee, M.Sc., a member of the college party. (See pl. xvi, figs. 1 and 2.)

EXPLANATION OF PLATE XVI.

Fig. 1.—*Nautilus hazaraensis*, n. sp. Side view.
,, 2.— ,, ,, ,, Front view.
,, 3.—*Megalodon*, sp. *cf. pumilus*, Gümbel.
,, 4.—*Corbula Middlemissii*, n. sp.
,, 5.—*Pecten*, sp. *cf. Sanderbergen*, Klipst.

All the figures are $1\frac{1}{2}$ times natural size.

FOSSILS FROM HAZARA.

18. History of Navya Nyāya in Bengal and Mithilā.

By Rai Monmohan Chakravarti Bahadur.

In the mediæval period Bengal paṇḍits specialised in five branches of knowledge—in religion Tantra, in the practical Medicine, in the semi-practical Smṛti and Grammar, and in pure speculation Navya Nyāya. In fact to scholastic India outside Bengal, this land is chiefly known by its developments in the Indian neo-logic. Even now students from Mithilā, Benares, Mahārāṣṭra, and Drāviḍa visit Navadvīpa for learning this highly abstruse branch of Indian thought.

Unfortunately very little is known of the scholars whose efforts raised the study of Navya Nyāya to such high pre-eminence. For this want of historical knowledge two causes among others may be mentioned. Firstly, the scholars themselves in their own works neglected to give any detailed information about themselves or about their times. Secondly, like the schoolmen of Europe in the Middle Ages they loved to speak so much in technicalities and subtle distinctions that beyond a vague wonder their studies created no ferment in the world outside, and hence did not give rise to any historical account by outsiders. If we compare the Gauṛīya Nyāya with the Gauṛīya Vaiṣṇavism which took birth at the same time, we find a striking contrast. On account of the wide popular interest produced by Vaiṣṇavism the history of its literature in Gauṛa is much fuller in information, while a larger amount of personal and historical details are available from the Vaiṣṇava writers, though in intelligence and subtle thinking they were much inferior to the Naiyāyika paṇḍits.

The object of this paper is mainly two-fold: firstly, to ascertain the works of the notable writers in Mithilā and Bengal, and secondly, to ascertain their times, in order that there may be established the chronological sequence, so necessary for tracing out the gradual development of ideas in this branch of knowledge in Eastern India. The subject will be discussed under three heads :—

A. The Introductory.
B. The Maithili School.
C. The Gauṛiya School.

The result of discussion as to the times of the Naiyāyika and other philosophical writers is summarised below :—

The Authors.	Their Approximate Times.
A. The Introductory.	
1. Vācaspati Miśra (Senior) ..	Second quarter of the ninth century (841 A.D.).
2. Jayanta ..	Second half of the ninth.
3. Śrīdhara ..	991 A.D.
4. Udayanācārya ..	Fourth quarter of the tenth century (984 A.D.).
5. Bhavadeva Bhaṭṭa ..	Second half of the eleventh.
6. Śrīharṣa ..	Third quarter of the twelfth.
7. Halāyudha Bhaṭṭa ..	Fourth quarter of the twelfth.
8. Pūrṇānanda Kavicakravarttī.	Older than the middle of the fourteenth century.
9. Ragunātha Tarkavāgīśa Bhaṭṭācārya.	Older than the middle of the fifteenth century.
B. The Maithili School.	
1. Gaṅgeśopadhyāya or Gaṅgeśvara.	Fourth quarter of the twelfth century
2. Varddhamānopādhyāya ..	First quarter of the thirteenth.
3. Jayadeva Miśra ..	Third quarter of the thirteenth.
4. Vāsudeva Miśra ..	Fourth quarter of the thirteenth.
5. Rucidatta Miśra ..	Do.
6. Bhagīratha or Megha Thakkura.	Fourteenth century.
7. Maheśa Ṭhakkura ..	Do.
8. Śaṅkara Miśra ..	Second and third quarters of the fifteenth century.
9. Vācaspati Miśra (Junior) ..	Third and fourth quarters of the fifteenth.
10. Misaru Miśra ..	Third quarter of the fifteenth.
11. Durgādatta Miśra ..	The sixteenth century.
12. Devanātha Ṭhakkura ..	Third quarter of the sixteenth.
13. Madhusūdana Ṭhakkura ..	Do.
C. The Gauṛiya School.	
1. Haridāsa Nyāyālaṅkāra Bhaṭṭācārya.	End of the fifteenth century.
2. Jānakīnātha Bhaṭṭācārya Cūṛāmaṇi.	First half of the sixteenth.
3. Raghunātha Tārkika Śiromaṅi.	First quarter of the sixteenth
4. Kaṇāda Tarkavāgīśa Bhaṭṭācārya.	Do.
5. Rāmakṛṣna Bhaṭṭācārya Cakravarttī.	Second quarter of the sixteenth.

The Authors.	Their Approximate Times.
6. Mathurānātha Tarkavāgīśa Bhaṭṭācāryā.	Third quarter of the sixteenth.
7. Kriṣṇadāsa Sārvvabhauma Bhaṭṭācārya.	Third quarter of the sixteenth.
8. Guṇānanda Vidyāvāgīśa Bhaṭṭācārya.	Third or fourth quarter of the sixteenth.
9. Rāmabhadra Sārvvabhauma Bhaṭṭācārya.	Fourth quarter of the sixteenth.
10. Jagadīśa Tarkālaṅkāra Bhaṭṭācārya.	Last decade of the sixteenth, and the first quarter of the seventeenth.
11. Rudra Nyāyavācaspati Bhaṭṭacārya.	Do.
12. Jayarāma Nyāyapañcānana Bhaṭṭācarya.	First quarter of the seventeenth.
13. Gaurikānta Sārvvabhauma Bhaṭṭācārya.	Do.
14. Bhavānanda Siddhāntavāgīśa Bhaṭṭācārya.	Do.
15. Harirāma Tarkavāgīśa Bhaṭṭācārya.	First and second quarters of the seventeenth.
16. Viśvanātha Siddhāntapañcānana Bhaṭṭācārya.	Do.
17. Rāmabhadra Siddhāntavāgīśa Bhaṭṭācārya.	Second quarter of the seventeenth.
18. Govinda Śarmmā ..	Do.
19. Raghudeva Nyāyālaṅkāra Bhaṭṭācārya.	Do.
20. Gadādhara Bhaṭṭācārya..	Do.
21. Nṛsiṁha Pañcānana Bhaṭṭācārya.	Third quarter of the seventeenth.
22. Rāmadeva Cirañjīva Bhaṭṭācārya.	Do.
23. Rāmarudra Tarkavāgīśa Bhaṭṭācārya.	Fourth quarter of the seventeenth.

A. THE INTRODUCTORY.

At the outset it is necessary to bear in mind that Navya Nyāya is based on an amalgam of old Nyāya and Vaiśeṣika. The standard works in both the systems were constantly used and referred to by these later writers. Hence some mention of these older works may help the general reader in understanding the numerous commentaries mentioned herein.

In the Nyāya system, the main authorities are (1) the *Nyāya-sūtra* of Gotama. (2) its gloss by Vātsyāyana Pakṣilasvamin, the *Nyāya-bhāṣya*, in four adhyāyas, and (3) the anno-

tations on both by Pāśupatācārya Udyotakara Bhāradvāja, the *Nyāya-vārttika.* The notes by the last two are brief, and generally on special points only.

The first real commentator was Vācaspati Miśra. He wrote in five adhyāyas the *Nyāya-vārttikatātparya-ṭīkā*, which gives fairly full and detailed explanation of the *sūtras* and their *vārttika*, with remarks of his own, and which was composed to meet the attacks of the other systems (including Bauddha and Jaina). Vācaspati Miśra wrote his *Nyāya-śūci-nibandha* in 898 (Vikrama) year or A.D. 841.[1] So his time falls in the second quarter of the ninth century. Three more works on Nyāya are attributed to him, viz. the *Nyāya-ratna-ṭīkā* or °*prakāśa*, the *Nyāya-tattv-āvaloka*, and the *Nyāya-sūtr-oddhāra.* Vācaspati Miśra's works have been found on five philosophic systems, but none on the Vaiśeṣika, an omission which is curious.

Vācaspati's sub-commentary was commented on by Udayanācārya in his *Nyāya vārttika-tātparya-pariśuddhi.* This was further supplemented by Udayana in a separate commentary on the *sūtras* themselves entitled *Nyāya-pariśiṣṭa*, or Nyāya supplements. Udayana treated Nyāya from the standpoint of Vaiśeṣika and should therefore be considered as the direct predecessor of the Maithili School.

In the Vaiśeṣika system, the foundation lies on (1) the *Vaiśeṣika-sūtra* of Kaṇāda, (2) its *Bhāṣya* or *scholia* by Praśastapāda, the *Padārtha-dharma-saṅgraha*, in six sections, (3) Vallabhācārya's *Nyāya-līlāvatī*, and (4) Śivāditya Miśra's *Sapta-padārthi* in which he added to the six categories of older writers, a seventh the abhāva or negation. The other six categories are dravya (substance), karmma (action), guṇa (attribute), sāmānya (genus), viśeṣa (species) and samavāya (combination).

Śrīdhara of Bhuriśreṣṭha in Rāṛhā (Modern Bhursuṭ in Howrah district), wrote in Śaka 913 the *Nyāya-kandalī*,[2] a sub-commentary on the *Bhāṣya* of Praśastapāda. He acknowledged only six categories. His work was, however, little used by the Maithili or Gauṛīya school. On the other hand, his contemporary Udayanācārya's *Kiraṇāvalī*, another sub-commentary on Praśastapāda's *Bhāṣya* in two sections (dravya and guṇa), powerfully influenced the Navya Nyāya Schools. In this commentary he speaks of only six categories. But in his *Lakṣaṇāvalī* (on definitions) he divides categories under two heads, the

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1 The *Nyāya-sūci-nibandha*, pr. ed., p. 26, end verse :—

न्यायसूचिनिबन्धो ऽसावकारि सुधियां मुदे ।
श्रीवाचस्पतिमिश्रेण वस्वङ्कवसुवत्सरे ॥

His *Bhāmatī* is quoted as an authority in Jayanta's *Nyāya-mañjari*, a work of the second half of the ninth century.

2 The *Nyāya-kandali* is printed in the Vizianagram series.

bhāva with the six categories and abhāva (the seventh), thus agreeing with Śivāditya's classification.

Besides these, Udayanācārya wrote two polemical treaties, which were frequently used in the later Nyāya literature. They are—

(1) the *Ātma-tattva-viveka* or a discussion about the truths on soul. From its attack on Buddhistic philosophies it is also called *Bauddha-dhikkāra* or condemnation of Buddhism.

(2) The *Nyāya-kusum-āñjali*, shortened now and then to *Kusum-āñjali*, or a handful of Nyāya flowers, in five stavakas or bunches. It consists of 71 kārikās or verses on the existence of God, with a commentary of his own, the *Kusum-āñjali-prakaraṇa.* In this work Udayana attacked the views of Saugatas, Digambaras, Cārvākas, Mīmāṁsakas, Sāṅkhyas and Vedantists. Some of the verses breathe noble ideas; for example, take the seventeenth verse of the fifth bunch[1]:—

"Iron-souled are they in whose hearts Thou canst find no place, though thus washed by the repeated inundations of ethics and vedic texts; yet still in time, oh Merciful One, Thou in thy goodness canst save even those who oppose our proposition, and make them undoubting in their conviction of Thy existence."

Udayana wrote the *Lakṣaṇāvalī*[2] in the expired Śaka year 906 or 984 A.D. He therefore flourished in the fourth quarter of the tenth century. His home is as yet unsettled. But from the use of the Śaka year and from the great influence his works exercised on the Maithilis, it is not improbable that he was a Maithili. The Nyāya gloss *Kiraṇāvalī* is later than the above two polemical works which it quotes, and is earlier than the *Lakṣaṇāvalī* where its introductory verse is quoted at the end.

The *Khaṇḍana-khaṇḍa-khādya* (The sweets of refutation) of Śrīharṣa had also a hand in moulding the views of the Navya Nyāya Schools. In four paricchedas it criticises vigorously the principal Indian schools of philosophy, and points out that the first principles and the fundamental definitions in every system contain defects leading to the rejection of that system, the only fact surviving is the fundamental assumption that we know (the *cogito ergo sum* of Descartes). He says: "The only difference between us and the Saugatas is that they maintain that every thing is inexplicable, while we maintain that everything is inexplicable except the mere fact of knowing," and again, "we, in fact, desisting from any attempt to establish the existence or non-existence of the external world, are perfectly con-

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[1] Cowell's translation of the *Kusum-āñjali*, p. 85.

[2] The *Lakṣaṇāvali*, pr. ed., p. 3, the last but one verse at the end:—

तर्काम्बराङ्कप्रमितेष्वतीतेषु शकान्ततः ।
वर्षेषूदयनश्चक्रे सुबोधां लक्षणावलीं ॥

tented to rest all our weight on the one Brahma, identical with thought, established by its own evidence." [1]

The *Khaṇḍana-khaṇḍa-khādya* was criticised by Gaṅgeśopādhyāya and commented upon by his son Varddhamāna. Hence it must be older than these. Some verses of his *Naiṣadha-caritam* are quoted in the *Sūkti-karṇ-āmṛta*, and must therefore be older than 1206 A.D., the date of that anthology. The *Khaṇḍana-khaṇḍa-khādya* quotes from the rhetorical work, the *Vyakti-viveka* of Mahima Bhaṭta, and from the *Nyāya-kusum-āñjali* of Udayanācārya. It must therefore be later than tenth century. Furthermore, according to Rājaśekhara Sūri's *Prabandha-koṣa* (1348 A.D.), Śrīharṣa flourished in the court of king Jayanta-candra, who is evidently identical with the king Jayacandra of Kanauja, crowned in 1170 A.D., and killed by Sahabuddin in 1194 A.D. In the *Khaṇḍana-khaṇḍa-khādya* itself Śrīharṣa speaks of having received an āsana and a pair of betels as prize from the king of Kānyakubja. Śrīharṣa also wrote a *Gaur-orv-īśa-kula-praśasti*, which, according to the commentator Gopīnātha, was composed in praise of the king Vijayasena. According to the *Puruṣa-parīkṣā* of Vidyāpati,[2] Śrīharṣa lived in Gauraviṣaya, a fact that explains the origin of the above poem. So his time falls in the third quarter of the twelfth century.

B. THE MAITHILI SCHOOL.

1. GAṄGEŚOPĀDHYĀYA.

The founder of the Navya-Nyāya School. He wrote the *Tattva-cintā-maṇi* or the thought-jewel of truths. Accepting Gotama's four-fold classification of proofs (pramāṇa), the work is divided into the following sections:—

1. Pratyakṣa or perception;
2. Anumāna or inference with a special subsection on Iśvar-ānumāna or the inference about God;
3. Upamāna or comparison.
4. Śabda or affirmation.

These sections are further sub-divided into vādas or discussions, pratyakṣa having twelve, anumāna seventeen, and śabda sixteen, upamāna having none.

Gaṅgeśa passes in review the whole field of Nyāya, and defends it against the attacks of other systems, whose views he criticises vigorously and often with novel and original remarks. The Sāṅkhya and the Vaiśeṣika are criticised least; but the Mīmāṁsakas, specially its two schools, the Bhaṭṭas and the

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[1] Cowell's translation, J.A.S.B. 1862, p. 389.

[2] See the *Puruṣa-parīkṣā*, *Medhāvī-kathā*:—बभूव गौडविषये श्रीहर्षनाम कविपण्डितः। स च नलचरिताभिधानं काव्यं कृत्वा परामृष्टवान्।

Prābhākaras, are unsparingly slashed. The views and opinions are quoted either generally in a vague way, under *kecit*, *kaścit*, *kācit*, *anye*, *apare*, *itare*, *ucyate*, *vadanti*, *tad-uktaṁ*, *ity-uktam*, or simply as *navyāḥ*, *navināḥ*, *atinavināḥ*, or occasionally under schools as *Mīmāṁsakāḥ Guravaḥ*, *Prābhākarāḥ*, *Bhaṭṭāḥ*, *Vaiśeṣikāḥ*, *Vedāntāḥ*, *Śābdikāḥ*, *Tāntrikāḥ*, *Tridaṇḍinaḥ*, *Sampradāya-vidāḥ*, *Prāñcāḥ*, and so on.

Names are given very rarely, e.g., *Khaṇḍana*-kāra (IIa, 3.233), Jayanta *jaran-naiyāyika* (III. 61) Maṇḍana or Maṇḍanācārya (IV*b*, 11.587, 14.847), *Ratna-koṣa*-kāra (IIa, 15.585, IVb, 13.830) Vācaspati Miśra (I, 3 537, IIb, 81), Śivāditya Miśra (I, 830), Śrīkara (IIc, 186), besides the *Mahā-Bhāgavata-purāṇa* and the *Viṣṇu-purāṇa*. Verses of Udayanācārya's *Kusum-āñjali* are quoted, viz., its III. 15 (in IVa, 1.91-2), and its V. 8 (in IVb, 13.820-1) while according to Mathurānāthā's commentary the quotation in I, 2.424 is from the Ācārya-caraṇa's *Bauddha-dhikkāra*.[1]

In the final colophon Gaṅgeśa is given the title of *Upādhyāya* (modern Ojhā), a class of Brahmans who with the Miśras and Ṭhakkuras practically monopolized Sanskrit learning in Mithilā Varddhamānopādhyāya calls himself son of Gaṅgeśvara.

The anterior limit of Gaṅgeśa is fixed by his criticising an opinion of *Khaṇḍana*-kāra. His work should therefore be later than the third quarter of the twelfth century. He must have preceded by a generation his son Varddhamāna, whose time falls approximately in the first quarter of the thirteenth century A.D. Gaṅgeśa may therefore be placed in the fourth quarter of the twelfth century during the overlordship of Lakṣmaṇasenadeva.

2. VARDDHAMĀNOPĀDHYĀYA.

He wrote mainly commentaries, and is the oldest commentator known on Udayana's works and on Śrīharṣa's Vedantic work. His commentaries bear generally the suffix *prakāśa*.

He wrote in Nyāya :—

(i) the *Tattva-cintāmaṇi-prakāśa*,[2] a commentary on his father's work, to be distinguished from a work of the same name by Rucidatta;

(ii) the *Nyāya-nibandha-prakāśa*, a commentary on Udayanācārya's *Nyāya-vārttika-tātparya-pariśuddhi*, quoted in his own No. vi;

(iii) the *Nyāya-pariśiṣṭa-prakāśa*, a commentary on Udayanācārya's *Nyāya-pariśiṣṭa*, quoted in his own No. vi, and in Jayadeva's *Āloka*;

(iv) the *Prameya-nibandha-prakāśa*, which may be the same as the *Prameya-tattva-bodha*, quoted

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[1] The references are to the Bib. Ind. ed. of the *Tattva-cintā-maṇi*.
[2] For a MS. see the Benares College *Catalogue*, 193.

as his by Rucidatta in the *Nyāya-kusum-āñjali-prakāśa-makaranda* [1];

in Vaiśeṣika :—

(v) the *Kiraṇāvalī-prakāśa*, a commentary on Udayanācārya's work, in two sections, Dravya and Guṇa;

(vi) the *Nyāya-kusum-āñjali-prakāśa*, a commentary on Udayana's famous polemical work; quoted by Haridāsa Bhaṭṭācārya in his *Kusūm-āñjali-ṭīkā* and commented upon by Rucidatta;

(vii) the *Nyāya-līlāvatī-prakāśa*, a commentary on Vallabhācārya's work; quoted in Jayadeva's *Āloka*;

in Vedānta :—

(viii) the *Khaṇḍana-khaṇḍa-khādya-prakāśa*, a commentary on Śrīharṣa's famous work, referred to in Pragalbhācārya's commentary (the *Khaṇḍan-odhāra*).[2]

Varddhamāna calls Gaṅgeśvara his father and preceptor,[3] and is in the final colophons given the title Upādhyāya. No other personal information of him is at present available.

Varddhamāna Mahopādhyāya is named in the *Sarvva-darśanasaṅgraha* of Mādhavācārya, under No. xiii, Pāṇini-darśana. So he must be older than the second half of the fourteenth century. He must be older than Jayadeva, who commented on two of his Vaiśeṣika works. Jayadeva's time cannot be later than the third quarter of the thirteenth century. He speaks of Varddhamāna reverently as *Mahāmahopādhyāya-caraṇāḥ*[4]; and so a fair interval must have elapsed between the two. Varddhamāna's time thus falls probably in the first quarter of the thirteenth century.

His *Nyāya-kusum-āñjali-prakāśa* mentions, and therefore must be later than his *Nyāya-nibandha-prakāśa* and *Nyāya-pariśiṣṭa-prakāśa*.

By his commentaries Varddhamāna considerably facilitated the study of Nyāya and Vaiśeṣika, and helped largely in establishing on a solid basis the Navya-Nyāya School of his father. It is a pity nothing authentic is known of the personal lives of

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[1] The Bib. Ind. ed., the *Kusum-āñjali-prakāśa*, I. p.384.

[2] Sans Coll. *Cat.*, III. 199, No. 314.

[3] The *Līlāvatī-prakāśa*, Ind. Off. *Cat.*, p. 668, No 2080, introd. verse 2:—

न्यायाम्भोजपतङ्गाय मीमांसापारदृश्वने ।
गङ्गेश्वराय गुरवे पित्रेऽस्तु भवते नमः ॥ [२ ॥]

[4] The *Tattva-cintā-maṇi*, Bib. Ind. ed., I. 6. 674. Besides writing commentaries on Varddhamāna's works, Jayadeva also mentioned his *Kusum-āñjali-prakāśa* in his *Āloka*.

these two famous scholars. He should be distinguished from the later jurist of the same name.

3. JAYADEVA MIŚRA.

A well-known commentator, best known by his—

(i) *Tattva-cintā-many āloka,*[1] or briefly the *Aloka* or light, a commentary on Gaṅgeśa's work, in four khaṇḍas. His notes are brief and mainly on points deemed difficult. He notes some different readings in the text of the *Cintā-maṇi.*

He also sub-commented on two Vaiśeṣika commentaries of Varddhamāna,[2] viz.—

(ii) the *Dravya-padārtha*, on the *Dravya-kiraṇāvalī-prakāśa*, and

(iii) the *Līlāvatī-viveka*, on the *Līlāvatī-prakāśa.*

He was nephew and pupil of Hari Miśra. He was surnamed *Pakṣadhara*, and apparently to distinguish him from other Jayadevas, is often called by that name alone. He is given the title of *Tārkikā-cūrāmaṇi* in the printed edition of the *Āloka* and in some of the MSS. He had as pupils Vāsudeva Miśra (his nephew) and Rucidatta Miśra.

He must be older than La-saṁ 159, Śrāvaṇa 6, the date of a MS. of his *Pratyakṣ-āloka*, or older than 1278 A.D.[3] His anterior limit is fixed by Varddhamāna, whose work he sub-commented upon. He might be placed in the third quarter of the thirteenth century.

4. VĀSUDEVA MIŚRA.

He wrote a commentary on the *Tattva-cintā-maṇi* of Gaṅgeśa.[4] In the final colophon he is described as nephew of Pak-

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[1] Portions of the *Āloka* have been printed in the Bib. Ind. ed. of the *Tattva-cintā-maṇi.*

[2] See for the *Dravya-padārtha*, Ind. Off. *Cat.*, p. 665. No. 2072, and for the *Līlāvatī-viveka*, Ind. Off. *Cat.* p. 668. Nos. 2081, 2082.

[3] R. Mittra, *Notices*, V, p. 299. No. 1976. The date is written curiously, and runs thus :—शुभमस्तु शकाब्दा ॥ लसं १५·९ ॥ तें श्रावणस्य ६ ॥

Here the figure after *śakābdā* has been apparently dropped, while in the figure after La. saṁ a dot put in between 15 and 9, evidently to signify decimal figure. Such insertions of dots to indicate decimal and centesimal figures are not uncommon in MSS. In the Plate I of the *Notices*, the characters appear to be Maithili and archaic, e.g. the character *k* is denoted by a wavy line only.

[4] The *Cintā-maṇi-ṭīkā* (Ind. Off. *Cat.*, p. 632, No. 1939), introd. verse 2 :—

जयदेवगुरोर्वाचि ये केचिद्दोषदर्शिनः ।
प्रबोधाय मया तेषां दौत्रिभूयोऽभिदीयते ॥ [२ ॥]

and the final colophon of the *Anumāna-khaṇḍa* :—इति श्रीन्यायसिद्धान्त-

sadhara Miśra, and is given the title *Nyāya-siddhānta-sār-ābhijña*, expert in the essence of logical conclusions He wrote his work for the understanding of those who found fault in the words of his guru Jayadeva. As nephew of Jayadeva his time falls in the fourth quarter of the thirteenth century.

5. RUCIDATTA MIŚRA.

Two commentaries of his are extant, viz.,—

(i) The *Tattā-cintā-maṇi-prakāśa*,[1] a commentary on Gaṅgeśa's work in Nyāya; and
(ii) the *Nyāya-kūsum-āñjali-prakāśa-makaranda*, a sub-commentary of Varddhamāna's commentary on Udayanācārya's Vaiśeṣika work.

Rucidatta was son of Devadatta and Reṇukā and brother of Śaktidatta and Matidatta. The family belonged to Sodara-purakula, to which belonged other later writers as Kṛṣṇadatta and Hṛdayanātha. He was a pupil of Jayadeva.[2]

He must be older than Śaka 1292 or 1370 A D., the date of a MS. of his *Tattva-cintā-maṇi-prakāśa*, pratyakṣa-khaṇḍa.[3] As a pupil of Jayadeva he may be placed in the fourth quarter of the thirteenth century.

6. BHAGĪRATHA OR MEGHA ṬHAKKURA.

Three of his Vaiśeṣika sub-commentaries are extant, all on Varddhamāna's work, viz.,—

(i) the *Kiraṇāvalī-prakāśa-prakāśikā* ;
(ii) the [*Nyāya-*] *Kusum-āñjali-prakāśa-prakāśikā* ; and
(iii) the [*Nyāya-*] *līlāvatī-prakāśa-vyākhyā*.

साराभिज्ञमिश्रवर्यपक्षधरमिश्रभ्रातृपुत्रन्यायसिद्धान्तसाराभिज्ञवासुदेवमिश्रविरचितायां चिन्तामणिटीकायां ...... ।

1 The *Tattva-cintā-maṇi-prakāśa*, *Śabda-khaṇḍa* (Ind. Off. *Cat.*, p. 633, Nos. 1946-7), the end verse 2 :—

श्रीदेवदत्ततनयो विनयोपगूढः
श्रीरेणुकाविरलगर्भपुटोपजातः ।
श्रीशक्तिदत्तमतिदत्तसहोदरो यः
सोऽमुं चकार रुचिदत्तकृती प्रकाशम् ॥ [२१]

2 Sans. Coll. *Cat.*, III. 544, the *Tattva-cintā-maṇi-prakāśa*, introd. verse 2 :—

अधीत्य रुचिदत्तेन जयदेवाज्जगद्गुरोः ।
चिन्तामणौ प्रत्यक्षमणौ प्रकाशोऽयं प्रकाश्यते ॥ [२ ।]

and the final cololphon :—इति श्रीसोदरपुरकुलसम्भूतमहामहोपाध्यायश्रीरुचिदत्तविरचिते तत्त्वचिन्तामणिप्रकाशे प्रत्यक्षपरिच्छेदः समाप्तः ।

3 For this old MS. see Peterson's sixth *Report*, p. 76, No. 190.

The titles have generally the suffix *prakāśikā.* He was elder brother of the next writer Maheśa, and younger brother of Mahādeva, whom he praises highly.

7. MAHEŚA ṬHAKKURA.

He wrote a sub-commentary on the commentary of Jayadeva on Gaṅgeśa's work, named *Āloka-darpaṇa* or the mirror of the light.

He was son of Dhīra and Candra or Candrapati, and younger brother of Mahādeva, the above-named Bhagīratha and Dāmodara.[1]

The *Darpaṇa* is quoted as an authority in Śaṅkara Miśra's *Tri-sūtri-nibandha-vyakhyā.*[2] Its time lies therefore between Jayadeva and Śaṅkara Miśra or between 1270 and 1450 A.D. The time of the two brothers may be placed tentatively in the fourteenth century.

8. ŚAṄKARA MIŚRA.

He wrote both on Smṛti and on Darśana, chiefly Vaiśeṣika. His extant philosophical works are as follows:—

(i) The *Ātma-tattva-viveka-kalpa-latā*, a commentary on Udayanācārya's polemical treatise.

(ii) The *Ānanda-vardhana*, pleasure-increaser, a commentary on Śrīharṣa's Vedantic *Khaṇḍana-khaṇḍa-khādya*, which is referred to in Pragalbhācārya's commentary thereon.

(iii) The-*Tattvā-cintā-maṇi-mayukha*, a commentary on Gaṅgeśa's famous work in Nyāya.

(iv) The *Tri-sūtri-nibandha-vyākhyā*, a sub-commentary on Udayanācārya's *ṭīkā* on the first three sūtras of Gotama's *Nyāya-sūtra*. It professes to be a supplement to the vyākhyā of the authors of *Prakāśa* (Rucidatta), *Darpaṇa* (Maheśa) and *Udyota* (Vāhinipati).

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[1] The *Anumān-āloka-darpaṇa* (Ind Off. *Cat.*, p .631, No. 1389), end verses 1 and 2 :—

जनकविषयजन्मा राजसम्मानपात्रं
महि + + + + धीरा चन्द्रपत्योस्तनुजः ।
चरचयदनुमानालोकमाश्रित्य नित्य-
प्रमथितखलदर्पं दर्पणं श्रीमहेशः ॥ [१ ॥]
ज्येष्ठा महादेवभगीरथदामोदरा यस्य वयोगुणाभ्याम् ।
(च) दर्पणं निर्मितवानमीषां सहोदरो विष्णुपरो महेशः ॥ [२ ॥]

[2] H. Shastri, *Notices*, vol. III. p. 89, No. 136, introd. verse 2 :—

प्रकाशदर्पणोद्द्योतकृद्भिर्व्याख्या कृतोज्ज्वला ।
तथापि योजनामात्रमुद्दिश्यायं ममोद्यमः ॥ [२ ॥]

(v) The *Nyāya-līlāvatī-kaṇṭh-ābharaṇa*, a commentary on the authoritative Vaiśeṣika work of Vallabhācārya.

(vi) The *Bheda-prakāśa* or *Bheda-ratna-prakāśa*, a criticism of the non-dualistic Vedānta. The only original work in philosophy of Śaṅkara as yet found. It is criticised in its turn in the *Saṁkṣepa-śārīraka* of Sarvajñātman (ii. 1).

(vii) The *Vaiśeṣika-sūtr-opaskāra*, a commentary on the Kaṇāda-sūtras, in ten adhyāyas, each with two āhnikas. It is the popular commentary on the original sūtras, and has been printed in the Bibl. Ind. edition.

The three smṛti works of his have been discussed in my article on the smṛti in Mithilā. He wrote also, apparently in his younger days, a small comedy on the marriage of Śiva and Pārvatī, the *Gaurī-digambara-prahasanam*, which was played at the instance of his father.[1]

Śaṅkara was son of Bhavanātha and nephew of Jīvanātha. His father was a learned man, as Śaṅkara in the introductory verses of several of his works refers to his father's instructions.

Śaṅkara must be older than 1462 A.D., in which year a MS. of the *Bheda-prakāśa* was copied.[2] As guru of the jurist Varddhamān-opādhyāya he cannot be much older than this time. He may be placed in the second and third quarters of the fifteenth century.

9. VĀCASPATI MIŚRA.

He is best known as a smṛti-writer. But in his last work the *Pitṛ-bhakti-taraṅginī*, he speaks of having composed some ten works in the (darśana) śāstra. Of these four at least can be traced :—[3]

(i) The *Anumāna-khaṇḍa-ṭīkā*, a commentary (probably on Gaṅgeśa's), giving the essence of the views of Gotama (Nyāya) and Jaimini (Mīmāṁsā).

(ii) The *Khaṇḍana-khaṇḍ-oddhāra*, a commentary on Śrī-harṣa's famous critique.

(iii) The *Nyāya-sūtr-oddhāra*, a commentary directly on Gotama's *Nyāya-sūtras*.

(iv) The *Śabda-nirṇaya*, on words. No MS. yet found. quoted in his smṛtic *Dvaita-nirṇaya*.

Vācaspati Miśra lived in the time of the kings Bhairavendra and Rāmabhadra, and was their *Pariṣad*, or court officer. His

[1] H. Shastri, *Notices*, vol. III, p. 52, No. 83.
[2] The *Bheda-prakāśa*, Saṁvat 1519 (Hall).
[3] See my article on *Smṛti in Mithilā*, J.A.S.B. 1915, not yet printed.

time therefore falls in the third and fourth quarters of the fifteenth century.

10. MISARU MIŚRA.

He wrote the *Padārtha-candra*, on the categories of the Vaiśeṣika system.

Like his smṛtic work the *Vivāda-candra*, it was attributed to Lachimādevi, wife of Candrasiṁha, the younger step-brother of the Mithilā king Bhairavasiṁhadeva.[1] His time therefore falls in the third quarter of the fifteenth century, if not earlier. He should be distinguished from one Misaruka, the author of the *Nyāya-dīpaka*.

With Śaṅkara and Vācaspati disappear the notable Nyāya-writers of Mithilā. Navadvīpa in Bengal now rose into importance, and soon eclipsed Mithilā. In the sixteenth century we still come across in Mithilā a few Nyāya writers, showing that its study was not entirely neglected in that period.

11. DURGĀDATTA MIŚRA.

The author of the *Nyāya-bodhini*,[2] who discusses therein some of the elementary principles of Nyāya and Vaiśeṣika. His time is uncertain, probably of the sixteenth century.

12. DEVANĀTHA ṬHAKKURA.

He wrote the *Tattva-cintā-many-āloka-pariśiṣṭa*,[2] a supplement to Gaṅgeśa's work and Jayadeva's *Āloka* thereon. A MS. of his work was copied in La. saṁvat 443 or 1562 A.D. by order of the author himself. So Devanātha should be placed in the third quarter of the sixteenth century.

13. MADHUSŪDANA ṬHAKKURA.

He wrote the *Tattva-cintā-many-āloka-kaṇṭak-oddhāra*,[2] a commentary refuting the objections to Jayadeva's *Āloka*. He must be older than La. saṁvat 491 or 1610 A.D., the date of a MS. of his work, and must be later than Vācaspati Miśra on whose *Dvaita-nirṇaya* he wrote another *Kaṇṭak-oddhāra*. His time thus falls roughly in the third quarter of the sixteenth century.

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[1] R. Mittra, *Notices*, IX. 12, No. 2901, introd. verse 2 :—

श्रीचन्द्रसिंहनृपतेर्दयिता लखिमाभिधादेवी ।
रचयति पदार्थचन्द्रं मिसरुमिश्रोपदेशेन ॥ [२॥]

For the other Misaruka, see *Notices*, X. p. 196, No. 4065. Aufrecht places Misaru in the latter half of the fourteenth century, or a century earlier.

[2] Mittra, *Notices*, V. p. 84, No. 1764, IX. p. 129, No. 3029; H. Shastri, *Notices*, III. p. 75, No. 116.

C. THE GAUṚIYA SCHOOL.

Of philosophical studies in old Bengal practically nothing is known. Along with Buddhism and Jainism some of their philosophical systems were, no doubt, studied. Of the Hindu philosophical systems signs exist that the Mīmāṁsā was regularly studied. Udayanācārya in his *Kusum-āñjali-prakaraṇa* and Gaṅgeśvara in his *Tattva-cintā-maṇi* mentions distinctly the *Gauṛa-Mīmāṁsakāḥ*. There still exist Bhavadeva Bhaṭṭa's *Tautātita-mata-tilakaṁ* and Halāyudha Bhaṭṭa's *Mīmāṁsā-sarvvasva* The former is a commentary on Kumārila's *Tantra-vārttika* and was considered an authority in the Mīmāṁsā philosophy. Other systems, if not studied regularly, do not appear to have been altogether neglected. The Vaiśeṣika system was represented by the commentary of Śrīdhara, the *Nyāya-kandalī*, also considered an authority. The Vedānta was represented on its sceptic nondualistic side by Śrīharṣa's *Khaṇḍana-khaṇḍa-khādya*, and on its dualistic side (Vaiṣṇavism) by Pūrṇānanda Kavicakravarttī's *Tattva-muktāvalī*. The Sāṅkhya was also not neglected, judging from Raghunātha Tarkavāgīśa Bhaṭṭācārya's *Sāṇkhya-tatva-vilāsa*, a MS. of which is dated 1448 A.D. It is in the Nyāya alone that no vestiges of its studies have been left behind. In fact it is very doubtful if Nyāya was at all studied regularly in old Gauṛa.

Then the Turks came and burst on the land, sweeping away all Hindu centres of learning and forcing the pandits to disperse to other lands. For a century and half Bengal knew little peace. It was not until Ilyas Shah had brought the greater part of Bengal under one rule that some settled form of government with its attendant culture could become possible. During the reign of his dynasty Hindu Bengal recovered slowly and gradually; and in the following century began the Hindu Revival. The comparative peace induced some of the adventurous students to travel to Mithilā, Benares and other old seats of learning. The Navya Nyāya branch appears to have attracted the minds of the more clever and quick-witted students, and its study was soon transplanted from Mithilā to Navadvīpa, then the main centre of Sanskrit learning in Bengal. The young plant soon became so high and vigorous that it ultimately overshadowed the parent plant. From sixteenth century downwards Navadvīpa became and is still the great place for learning the Indian neo-logic system. In the sixteenth and seventeenth centuries during a period of 150 years, Navadvīpa was adorned by a galaxy of philosophical stars, Raghunātha Śiromaṇi to Gadādhara Bhaṭṭacārya, the products of whose brains rivalled in acuteness

[1] Pūrṇānanda's *Tattva-muktāvalī* is quoted under the *Rāmānuja-darśana* of Sāyanācārya's *Sarva-darśana-saṅgraha*, and must therefore be earlier than the middle of the fourteenth century.

of reasoning and subtlety of thought those of the best schoolmen of Mediæval Europe.

From the seventeenth century downwards the new school spread outside Bengal, first to Benares, and then to other parts of India. After the eighteenth century Bengal ceased to produce any notable writers, and the bulk of the sub-commentaries and discussions were written by non-Bengalis. Gadādhara Bhāṭṭacārya's voluminous works seem to have been studied specially in South India.

1. HARIDĀSA NYĀYĀLAṆKĀRA BHAṬṬĀCĀRYA.

Several of his commentaries are extant,[1] viz.:—

(i) The *Kusum-āñjali-vyākhyā*, or a commentary on Udayana's verses.
(ii) The *Tattva-cintā-maṇi-prakāśa*, a commentary on Gaṅgeśa's famous work;
(iii) The *Maṇy-āloka-ṭippaṇī* or *vyākhyā*, a sub-gloss on Jayadeva's commentary, the *Āloka*.

Haridāsa Nyāyālaṅkāra must be older than Śaka 1521 or 1599 A.D., in which year a MS. of his *Maṇy-āloka-ṭippaṇī* (Sabda) was copied. How much older he was there are no data to decide. According to the late Paṇdit Candrakānta Tarkālaṅkāra he was older than Raghunātha Śiromaṇi. I have come across no facts going against this conclusion. He might be placed in the fifteenth century towards the end, if not earlier.

2. JĀNAKĪNĀTHA BHAṬṬĀCĀRYA CŪṚĀMAṆI.

He wrote the *Nyāya-siddhānta-mañjarī*, an elementary treatise on the four kinds of proof. This work was widely read, and had been commented upon in more than a dozen commentaries. Its references are very few, Śivāditya Miśra, Murāri Miśra and the *Cintā-maṇi* only being named.

Jānakīnātha calls himself simply Śarmmā. In the colophons, he is often given the title *Bhaṭṭācārya Cūṛāmaṇi*, but in some of the MSS. his title is given as *Nyāya-cūṛāmaṇi*.[2]

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[1] The first has been printed, edited by Cowell. It names only one work, the *Prakāśa* (of Varddhamāna) in p. 1, and occasionally prefers the views of the older writers to even Udayanācārya's, e.g., see under V. 14 with the remark प्राचीनमतमेव साधीयः.

For the second work (Śabda) see Peterson's sixth Report, No. 218, with an extract on page 16; for the third work, R. Mittra. *Notices*, VIII, pp. 290-1, No. 2851 (Anumāna), and 2852 (Śabda). The last has in the final colophon the date Śaka 1521:—इति महामहोपाध्यायश्रीहरिदासन्यायालङ्कारभट्टाचार्य्यकृता शब्दमण्यालोकटिप्पणी समाप्ता । शकाब्दा १५२१ ।

[2] For the title *Nyāya-curāmaṇi*, see Sans. Coll. *Cat.* III, p. 233, No. 382.

The *Nyāya-siddhānta-mañjarī* must be considerably older that Saṁvat 1717 or 1660 A.D., the date of a MS. of a commentary on the work, the *Siddhānta-mañjarī-ṭippaṇam* of Śiromaṇi Bhaṭṭācārya.[1] How much older the work was there is no means at present of knowing. But from its wide popularity before the third quarter of the seventeenth century, and from its non-mention of the famous Raghunātha Śiromaṇi or of his works, its author would seem to have been a near contemporary of the said Raghunātha. He might be placed tentatively in the first half of the sixteenth century, if not earlier.

3. RAGHUNĀTHA TĀRKIKA ŚIROMAṆI.

The real founder of the Gauṛīya school of Navya Nyāya. He wrote a number of works, but his fame rests mainly on two, viz.,—

(i) The *Tattva-cintā-maṇi-dīdhiti.* This is not only a commentary on Gaṅgeśa's work, but also a running criticism on the various topics of Nyāya given in that treatise, with some additional topics as Naña-vāda or negative particles. Familiarly known as *Śiromaṇi.*

References to works and authors are rare.[2] Besides the vague *kaścit, kecit,* and only a little less vague, the *Prācām* and *Prāñcaḥ,* the *Navīnāḥ* and *Navyāḥ, Sampradāyaḥ* or *Sampradāya-vidāḥ,* and the various systems, we come across *Ācāryāḥ* (? Udayanācārya), *Upādhyāyāḥ, Ṭīkākār-ānuyāyinaḥ* (Vācaspati Miśra and followers), *Tātparya-ṭīkāyām....Miśraiḥ. Nyāyācāryāḥ, Maṇḍana-mat-ānuyāyinaḥ* (followers of Maṇḍana Miśra's views) and *Ratnakoṣa*-kṛt.

The *Dīdhiti* poured new wine into the old bottle, and created a ferment in Bengal that lasted for not less than a century and a half. Manuscripts of the work, specially of its Anumāna-khaṇḍa, are found scattered not only in Bengal but in various other parts of India. It was sub-commented by many writers, at least a dozen and half, of whom the majority came from provinces outside Bengal.

(ii) The *Padārtha-tattva-nirupaṇam* or *Padārtha-khaṇḍanam.* This is an acute criticism of the categories given in the Vaiśeṣika system and is highly controversial in nature. It was closely studied in later times, and was commented upon by more than half a dozen Ṭīkākāras, chiefly Beṅgalis.

In addition Raghunātha wrote :—

(iii) The *Kiraṇāvalī-prakāśa-dīdhiti,* or °*vivṛti,* in two parts, Dravya and Guṇa, giving a running criticism on the Vaiśeṣika

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[1] Peterson's fifth *Report,* p. 241, No. 211.

[2] The *Anumāna-dīdhiti* has been printed in Calcutta (Saṁvat 1905) and certain sections thereof, the Naña-vāda and the Akhyāta-śakti-vāda, have been printed as appendices in the Bib. Ind. ed., vol. IV. The references are to these printed works.

work of Udayanācārya. It was sub-commented by about half a dozen Beṅgali writers.

(iv) The *Bauddha-dhikkāra-dīdhiti*, a commentary on Udayanācārya's *Ātma-tattva-viveka*, sub-commented by Gadādhara.

(v) The *Nyāya-līlāvatī-prakāśa-dīdhiti*, or °*vistārikā*, a sub-commentary on Vallabhācārya's Vaiśeṣika work, with a running criticism of Varddhamāna's commentary thereon. It was commented upon by half a dozen Beṅgali writers, Rāmakṛṣṇa, Mathurānātha, Jagadīśa, Guṇānanda, Rudra and others.

(vi) The *Khaṇḍana-khaṇḍa-khādya-dīdhiti*, a commentary on Śrīharṣa's critique.

Raghunātha is given the title *Tārkika-cuṛāmaṇi* in Hall's *Index* wrongly. In the MSS., he is given the title *Tārkika-śiromaṇi* or simply *Śiromaṇi*. The title *Bhaṭṭācārya Śiromaṇi* is used in one of the oldest commentaries of the *Maṇi-dīdhiti*, the *Bhāvānandī* of Bhavānanda Siddhānta-vāgīśa.[1]

Unfortunately nothing authentic is known either of Raghunātha personally or of his ancestors. In the final colophon of a MS. dated Śaka 1658 (1736 A.D.) he is described as *Bhaṭṭācāry-ātmaja*, son of a Bhaṭṭācārya[2], but no name of the father is given. According to tradition he was a pupil of Vāsudeva Sārvvabhauma, the preceptor of Caitanya, the Vaiṣṇava preacher. But of this there is no authentic confirmation. In later days he came to be known as *Kāṇā Śiromaṇi*, or the one-eyed.[3]

Raghunātha must be much older than Śaka 1524 or 1602 A.D., in which year a MS. of Krisnadāsa Sārvvabhauma's sub-commentary on his *Anumāna-dīdhiti* was copied. He must be considerably older than Mathurānātha Tarkavāgīśa Bhaṭṭācārya, who sub-commented on his *Maṇi-dīdhiti* and *Līlāvatī-prakāśa-dīdhiti* and who in his commentary the *Cintāmaṇi-rahasya* even mentions the followers of the *Dīdhiti*, *Dīdhity-anuyāyinaḥ*.[4] How much older Raghunātha was there is no means at present of knowing. His time may be tentatively placed in the first quarter of the sixteenth century.

From Raghunātha started a Navya Nyāya school which was, as noticed above, mentioned as early as Mathurānātha's

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[1] The *Bhāvānandī*, Sans. Coll. *Cat.*, III. p. 173, No. 269, end (also Mittra, *Notices*, II. p. 186, No. 781) :— तदुपेक्षितं भट्टाचार्य्यशिरोमणिभिरिति ॥

[2] R. Mittra. *Notices*, III. p. 28, No, 1052. the final colophon :—
इति महामहोपाध्यायश्रीमद्भट्टाचार्य्यात्मजशिरोमणिकृता अनुमानदीधितिः समाप्ता ॥

[3] The Jaina *Khaṇḍana-hhādya* of Yasovijaya Gaṇi. fol. 437 (quoted by Dr. Satis Chandra Vidyābhuṣaṇa, J.A.S.B. 1910, p. 466) :—अभाग्य गौडदेशस्य यत्र काणः शिरोमणिः ।

[4] The *cintā-maṇi-rahasya*, Bib. Ind. ed. I, 2. 277.

time. Their destructive criticisms of the views of the Maithili school evoked opprobrious remarks from Yaśovijaya Gaṇi, the Jaina writer on Nyāya [1]. Mahādeva Puntāṃkara in his *Nyāya-Kaustubha* calls them the modern, *Dīdhiti-kār-ānuyāyino Navyāḥ*. This school comprised all the notable writers on logic at Navadvīpa, and powerfully moulded subsequent studies in Navya Nyāya.

4. KAṆĀDA TARKAVĀGĪŚA BHAṬṬĀCĀRYA.

He wrote [2] :—

(i) The *Maṇi-vyākhyā*, a commentary on Gaṅgeśa's *Tattva-cintā-maṇi*, of which only MSS. on the Anumāna-khaṇḍa had been yet found, with fragments thereof, e.g., on Avayava (the terms of a syllogism) and on Vāyu (air).

(ii) The *Bhāṣā-ratnam*, on the seven categories of the Vaiśeṣika system.

(iii) The *Āpa-śabda-khaṇḍanam*, another Vaiśeṣika work.

Nothing authentic is known of this writer. According to tradition Raghunātha and he were co-pupils of Vāsudeva Sārvvabhauma [3]. According to the tradition therefore his time would fall in the first quarter of the sixteenth century.

In the introductory verse of the *Bhāṣā-ratnam*, Kaṇāda salutes one Cūrāmaṇi. Is he the *Tārkika-cūrāmaṇi* Jayadeva?

5. RĀMĀKṚṢṆA BHAṬṬĀCĀRYA CAKRAVARTTĪ.

He wrote [4] : —

(i) The *Guṇa-Śiromaṇi--prakāśa*, a sub-commentary on the *Guṇa-prakāśa-dīdhiti* of Raghunātha Śiromaṇi, the second part of his *Kīraṇāvalī-prakāśa-dīdhiti* (Vaiśeṣika).

It is not certain, but the above writer may have written the following work:—

(ii) The *Nyāya-dīpikā*, on some general topics of Nyāya. The author is entitled here *Tarkāvataṃsa Bhaṭṭācārya.*

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[1] See the above note 3, and Dr. S. C. Vidyābhuṣaṇa's quotation from the *Aṣṭa-sāhasri-vivaraṇa*, J.A.S.B. 1910, p. 466.

[2] For the *Maṇi-vyākhyā*, see R. Mittra, *Notices*, IV. p. 167, Sans. Coll. *Cat.*, III. p. 327, No. 582 (Śaka 1705), and H. Shastri, *Notices*, IV. p. 13. No. 14. For the *Bhāṣā-ratna*, see R. Mittra, *Notices*, IV. p. 119, No. 1531. introd. verse 11:—

चूड़ामणिपदाम्भोजभ्रमरीभूतमौलिना ।
सङ्क्षिप्य श्रीकणादेन भाषारत्नं वितन्यते ॥ [१ ॥]

For No. iii, see Peterson's sixth *Report*, p. 74, No. 173.

[3] For some traditionary account of Kaṇāda, see H. Shāstri's introduction to his *Notices*, vol. I, p. xviii.

[4] For (i), see Ind. Off. *Cat.*, p. 664, Nos. 2068-2069; for (ii) see H Shastri, *Notices*, vol. II, p. 97, No. 117 (Śaka 1737).

Hall says that he was son of Raghunātha Śiromaṇi. Of this there is no proof. On the other hand he calls Śiromaṇi his *guru* or preceptor.[1]

He must be older than Saṁvat 1660 or 1603 A.D., the date of a MS. of his *Guṇa-Śiromaṇi-prakāśa.*[2] As pupil of Śiromaṇi he would be later than the first quarter of the sixteenth century. He might be placed in the second quarter of the same century.

He should be distinguished from another Rāmakṛṣṇa Bhaṭṭācārya, surnamed Udicya (the northerner) who later wrote a series of works on Sāṅkhya and Smṛti entitled *Kaumudī.*

6. MATHURĀNĀTHA TARKAVĀGĪŚA BHAṬṬĀCĀRYA.

He is best known for—

(i) the *Tattva-cintā-maṇi-rahasya* or °*Phakkikā*,[3] the standard Bengali commentary on Gaṅgeśa's work, familiarly known as *Māthurī*. It is full and clear in its elucidation. Its references to other works and writers, though not many, are somewhat larger. It mentions such vague words as *Abhinava-Vaiśeṣikāḥ*, *Abhinava-Mīmāṁsakāḥ*, *Ucchṛṅkhalāḥ*, *Uttānāḥ*, *Jaran-Naiyāyika-naye*, *Navīna-naye*, *Navyāḥ*, *Naiyāyika-navyāḥ*, *Naiyāyik-ottānāḥ*, *Prābhākara-navyāḥ*, *Prācām*, *Prācīna-granthāḥ*, *Prācīna-Naiyāyikānām*, *Prācīna-matam*, *Prācīna-Mīmāṁsaka-granthāḥ*, *Prācīna-Mīmāṁsaka-matam*, *Prācinaiḥ*, *Sampradāya-mataḥ*, *Sampradāya-vidaḥ*, *Sāmpradāyikaḥ*, *Svatantrāḥ*, and so on. Among actual names we find :—

Udayanācārya, Ācārya or Ācārya-caraṇaiḥ.
Ācāry-ānuyāyinaḥ.
Upādhyāyāḥ.
Upādhyāy-ānuyāyinaḥ.
Ṭīkā-kāraḥ.
Dīdhiti.
Dīdhiti-kṛt.
Dīdhity-ānuyāyināḥ.
Dravya-kiraṇāvalī.
Durgā-Māhātmya.
Padārtha-khaṇḍana.
Bauddha-dhikkāra.
Bhaṭṭācāryāḥ.
Bhaṭṭācāry-ānuyāyinaḥ.
Maṇḍana.
Maṇi-kāra or °kṛt.
Mahārṇava.
Miśrāḥ (Vācaspati).
Miśr-ānuyāyinaḥ.
Ratna-koṣa-kāra.
Līlāvatī-kāra.
Sondaropādhyāya.
Harināthopādhyāya.

He quotes also his own *Guṇa-prakāśa-rahasya*, *Dīdhiti-rahasya* and *Siddhānta-rahasya.*

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[1] Ind. Off. *Cat.*, No. 2068, introd. verse 2 :—

यन्मूलमेव सुकृतानि तयोः कृतानि
व्यासादयः सदसि नित्यमुदाहरन्ति ।
तस्याश्रयं गुणविवेचनमाकलय्य
श्रुते शिरोमणिगुरोरिह रामकृष्णः ॥ [२ ॥]

[2] Ind. Off. *Cat.*, No. 2069.

[3] The bulk of this commentary (Pratyakṣa, Anumāna and Śabda) has been printed in the Bib. Ind. edition.

(ii) The *Tattva-cintā-many-āloka-rahasya* or °*phakkikā*, a sub-commentary on Jayadeva's *Āloka*.

(iii) The *Dīdhiti-rahasya*, a sub-commentary on Raghunātha Śiromaṇi's commentary, quoted in his *Tattva-cintā-maṇi-rahasya* and *guṇa-prakāśa-phakkikā*.

(iv) The *Siddhānta-rahasya*. No MS. found. Quoted in (i).

In Vaiśeṣika he wrote :—

(v) The *Kiraṇāvalī-prakāśa-phakkikā* or ° *vivṛti*,[1] a sub-commentary of Varddhamāna's commentary on Udayanācārya's work. It quotes in the beginning the *Anumanā-dīdhiti-rahasya* (No. iii).

(vi) The *Nyāya-līlāvatī-prakāśa-rahasya*, a sub-commentary on Varddhamāna's *Prakāśa*. It mentions his *Dīdhiti-rahasya* (No. vii).

(vii) The *Nyāya-līlāvatī-prakāśa-dīdhiti-rahasya*, a sub-sub-commentary on the sub-commentary *Dīdhiti*. It is quoted in No. vi.

(viii) The *Bauddha-dhikkāra-rahasya* or °*vivṛti*, a sub-commentary on Udayanācārya's *Ātma-tattva-viveka*.

Mathurānātha is said to have written also in astrology :—

(ix) The *Āyur-dāya-bhāvanā*, a commentary on the *Āyur-dāya*, treating of the calculation of human life.

And in smṛti :—

(x) The *Pāṇigrah-ādi-kṛtya-viveka*, on marriages and the appropriate times thereof, with a discussion of the mala-māsa or intercalary month.[2]

Mathurānātha was son of Śrīrāma Tarkālaṅkāra who is said to have made a bridge over the sea of Nyāya.[3] He does not name his preceptor. According to tradition he was a pupil of Raghunātha Śiromaṇi. But if this had been the fact Mathurānātha would have likely mentioned such a famous name. One verse suggests that his father might have been his guru.[4]

Mathurānātha must be older than Śaka 1597 or 1675 A.D., in which year a MS. of his *Līlāvatī-prakāśa-dīdhiti-rahasya* was

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[1] In one MS. (H. Shastri, *Notices*, I. p. 88, No. 92) the final colophon ascribes the *Guṇa-prakāśa-vivṛti*, the second half of Mathurānātha's No. v, wrongly to Vidyāvāgīśa Bhaṭṭācārya (Guṇānanda) giving a wrong name *Guṇa-vivṛti-viveka*.

[2] For (ix) see R. Mittra, *Notices*, VI. p. 302, No. 2241 ; for (x) see Do., IX, p. 244, No. 3164.

[3] See the beginning of the *Tattva-cintā-maṇi-rahasya* :—

न्यायाम्बुधिकृतसेतुं हेतुं श्रीराममखिलसम्पत्तेः ।
तातं त्रिभुवनगीतं तर्कालङ्कारमादराद्वन्दे ॥ [१ ॥]
श्रीमता मथुरानाथतर्कवागीशधीमता ।
विशदीकृत्य दर्श्यन्ते प्रत्यक्षमणिफक्किका ॥ [२ ॥]

[4] The *Anumāna-dīdhiti-rahasya* (R. Mittra, *Notices*, III, p. 127, No. 1673), the introductory verse 2 :—

copied.[1] How much older he was there are at present no data to go upon. He must have been considerably later than Raghunātha, whose two works he commented upon (Nos. iii and vii), and whose followers he mentioned in his No. i. At present he might be put tentatively in the third quarter of the sixteenth century.

He should be distinguished from the later Mathurānātha Śukla,[2] who is credited with numerous works on Smṛti, Yoga, rhetoric, etc.

7. KṚṢṆADĀSA SĀRVVABHAUMA BHAṬṬĀCĀRYA.

He wrote :—

(i) The *Tattva-cintā-maṇi-dīdhiti-prasāriṇī*,[3] a sub-commentary of Raghunātha's famous commentary.

(ii) The *Anumān-āloka-prasāriṇī*, a sub-commentary of Jayadeva's *Āloka*, Anumāna-khaṇḍa. No MS. yet found. Quoted in his No. (i).

Nothing is known of him personally. He must be older than Śaka 1524 or 1602 A.D., the date of a MS. of his *Anumāna-dīdhiti-prasāriṇī*.[4] As he notes different readings of the *Dīdhiti*, he must be considerably later than Raghunātha. His time falls roughly in the third quarter of the sixteenth century.

8. GUṆĀNANDA VĪDYĀVĀGĪŚA BHAṬṬĀCĀRYA.

He wrote works generally ending in *viveka*.

(i) The *Anumāna-dīdhiti-viveka*, a commentary on Raghunatha's famous work. No MS. found. Quoted in his *Ātma-tattva-viveka-didhiti-ṭīkā* (No. ii).

(ii) The *Ātma-tattva-viveka-dīdhiti-ṭīkā*, a sub-commentary of the *Dīdhiti* commentary on Udayanācārya's work.

(iii) The *Guṇa-vivṛti-viveka*, or the *Tātparya-sandarbha*, a sub-sub-commentary on Varddhamāna's commentary and Raghunātha's sub-commentary thereon.

(iv) The *Nyāya-kusum-āñjali-viveka*, a commentary on the Kārikās or verses of Udayana's work.

जगद्गुरोः श्रीरामस्य चरणौ मूर्द्धि धारयन् ।
तत्सुतो मथुराना + + + + स्फुटयत्ययं ॥ [२ ॥]

[1] See the MS. of the *Līlāvatī-dīdhiti-rahasya* (R. Mittra, *Notices*, III. p. 56, No. 1089, see the head note for the year).

[2] In the Benares *Catalogue of Sanskrit MSS*. for 1912-13, the hymn *Kālikā-stuti*, composed in Śaka 1545 or 1623 A.D., is attributed to the Naiyāyika Mathurānātha wrongly, instead of to Mathūrānātha Śukla.

[3] This work is being printed in the Bib. Ind. Series. For (ii) see p. 8:—

विचारस्तु अनुमानालोकप्रसारिण्यामनुसन्धेयः ।

[4] Ind. Off. *Cat.*, p. 627, No. 1927, शकाब्दाः १५२४ ॥

(v) The *Nyāya-līlāvatī-prakāśa-dīdhiti-viveka*, a sub-sub-commentary of Raghunātha's sub-commentary of Varddhamāna's commentary on Vallabhācārya's Vaiśeṣika work.

(vi) The *Śabd-āloka-viveka*, a sub-commentary of Jayadeva's *Āloka*, Śabda-khaṇḍa.

Nothing personal is known of Guṇānanda. He is criticized (in the *Nyāya-khaṇḍana-khādya*) by the Jaina logician Yaśovijaya Gaṇi, whose time is given as 1608-1688 A.D. and a MS. of whose *Upadeśa-rahasyaṁ* (with vṛtti) is dated Saṁvat 1713 or 1656 A.D.[1] The Jaina author came across Guṇānanda's works probably when studying at Benares, i.e. in his younger days. So Guṇānanda must be older than 1630-40 A.D. Further he must be older than Śaka 1534 or 1612, A.D. in which year a MS. of his *Guṇa-vivṛti-viveka* was copied.[2] How much older he was there are at present no data to go upon. But he must be considerably later than Raghunātha, four of whose works he commented upon. His time may be placed roughly in the third or fourth quarter of the sixteenth century.

9. RĀMABHADRA SĀRVVABHAUMA BHAṬṬĀCĀRYA.

He wrote in Nyāya :—

(i) The *Dīdhiti-ṭīkā*, a sub-commentary of Raghunātha's commentary, of which fragments only have been found, viz. Vāyu-vāda (Anumāna), Naña-vāda and Samāsa-vāda (Śabda).

(ii) The *Nyāya-rahasya*, a commentary on Gotama's *Nyāya-sūtra* itself, quoted in Jagadīśa Tarkālaṅkāra's *Śabda-śakti-prakāśikā*.

And in Vaiśeṣika :—

(iii) The *Guṇa-rahasya*, a commentary on the *Guṇa-kiraṇāvalī* of Udayanācārya.

(iv) The *Nyāya-kusum-āñjali-kārikā-vyākhyā*, a commentary on Udaynācārya's verses, in which he mentions the *Prakāśa* (of Varddhamāna) and the *Makaranda* (of Rucidatta), written according to his father's interpretations.

(v) The *Padārtha-viveka-prakāśa*, a commentary on the *Padārtha-khaṇḍana* of Raghunātha Śiromaṇi.

And in Tantra :—

(vi) The *Ṣaṭ-cakra-krama-dīpikā*, describing the six circles of the Tantric system in six sections, viz., sṛṣṭi, pañca-bhūta, daś-endriya, daś-endriya-guṇa, sapta-pātāla-sthāna, and cakra-bheda.

Hall says he was a son of the famous Raghunatha Śiromaṇi. But of this there is no proof. On the other hand he

[1] J.A.S.B. 1910, p. 468, and for Yaśovijaya's date, p. 463. For the dated MS., see Peterson's sixth *Report*, MS. No. 77, p. 141.

[2] Ind. Off. *Cat.* p. 666, No. 2074, वेदाग्निवाणेन्दुयुतेशकाब्दे.

calls himself son of Bhavanātha and Bhavānī, and praises his father's teachings as better than those contained in the *Prakāśa* and the *Makaranda.*[1] His *ṭol* must have been well-conducted, for it produced two such highly learned scholars as Jayarāma Nyāyapañcānana Bhaṭṭācārya and Jagadīśā Tarkālaṅkāra Bhaṭṭācārya.

He must be older than Samvat 1670 or 1613 A.D., when a MS. of his *Padārtha-tattva-vivecana-prakāśa* (No. v) was copied.[2] As the preceptor of Jagadīśa and Jayarāma, he should be older than the seventeenth century. He must be much later than Raghunātha, on whose works he commented. He might be placed tentatively in the fourth quarter of the sixteenth century, if not earlier.

He should be distinguished from the two Rāmabhadra Nyāyālaṇkāra Bhaṭṭācāryas, both older than him, one a grammarian and the other a jurist.

10. JAGADĪŚA TARKĀLAṄKĀRA BHAṬṬĀCĀRYA.

A famous writer. He wrote in Nyāya :—

(i) The *Tattva-cintā-maṇi-dīdhiti-prakāśikā*, a sub-commentary of Raghunātha's work, a standard commentary familiarly known as the *Jāgadiśī*. It was widely read, was commented upon by half a score of writers and was criticized by Candranārāyaṇa.

(ii) The *Tattva-cintā-maṇi-mayukha*, a commentary directly on Gaṅgeśa's work, of which only portions have survived.[3]

(iii) The *Nyāy-ādarśa* or *Nyāya-sārāvalī*, dealing with the doctrine of causality.

(iv) The *Sabda-śakti-prakāśikā*,[4] on the force of words, etc., a grammatico-philosophical treatise. It contains an elaborate discussion of words and their grammatical relations from the standpoint of Nyāya. Among grammars and grammarians it names *Phaṇi-bhāṣya*-kṛt, the *Vākya-padīya*, Bhartṛhari, Pāṇini, Śrīkara, Kaumārāḥ, Bopadeva, Kālāpāḥ, *Vārttika*-kṛt, the

[1] The *Kusum-āñjāli-vyākhyā*, Sans. Coll. *Cat.*, MS. III. 318, introd. verses 2 and 3 :—

भवानीभवनाथाभ्यां पितृभ्यां प्रणम्यामहं ।
यत्प्रसादादिदं शास्त्रं करस्थौरोपमं कृतम् ॥ [२ ॥]
मकरन्दप्रकाशे या व्याख्या मलिमलेऽथवा ।
ततोऽधिकां पितुर्व्याख्यामाख्यातुमयमुद्यमः ॥ [३ ॥]

[2] Sans. Coll. *Cat.*, III. p. 241, No. 399, final colophon :—इति श्रीरामभद्रसार्व्वभौमकृतपदार्थतत्त्वविवेचनप्रकाशः समाप्तः ॥ संवत् १६७० समये आश्विन शुक्लद्वादश्यां लिखितमिदं पुस्तकं परोपकारार्थं ॥

[3] H. Shastri, *Notices*, I. p. 211, No. 213.

[4] Printed in Calcutta (Śaka 1769), and in Benares.

Bhatti, *Churni*, Bhāguri, Bābhaṭa, Āpiśaliyāḥ, Jayāditya. Among others we get Navyāḥ, Vṛddhāḥ, Maṇḍanācārya, Śiromaṇi, the *Nyāya-rahasya*, the *Ek-ākṣara-koṣa*, *Cintā-maṇi* or *Maṇi*-kṛt, the *Maṇi-bhāṣya*, Pakṣadhara Miśrāḥ, the *Guṇa-kiraṇāvalī*, Ācārya, the *Kiraṇāvalī*, Varddhamāna, the *Mīmāṁsā-mahārṇava*, Vatseśvara, Sondaḍaḥ, the *Maṇi-dīdhiti*. It is quoted in the grammatical *Śabda-rahasya* of Rāmakānta Vidyāvāgīśa and was commented on by two other writers.

And in Vaiśeṣika,—

(v) The *Tark-āmṛta*, an original treatise on the elementary principles of Vaiśeṣika in four sections (the four kinds of proofs). It was widely read and was commented upon by Mukunda Bhaṭṭa and Gaṅgārāma Jaḍin.

(vi) The *Dravya-bhāṣya-ṭīkā* or *Padārtha-tattva-nirṇaya*, a sub-commentary of Praśastapāda's gloss on the *Vaiśeṣika-sūtras* of Kaṇa-bhakṣya muni; the dravya sections as yet found.

(vii) The *Nyāya-līlāvatī-dīdhiti-vyākhyā*, a sub-commentary on Raghunātha Śiromaṇi's commentary.

In Smṛti some works are attributed to him, but without sufficient reasons.

Jagadīśa Tarkālaṅkāra calls himself the pupil of a Sārvvabhauma who should be identified with Rāmabhadra Sārvvabhauma, as Jagadīśa quotes his *Nyāya-rahasya* with the remark that it was his guru's.[1]

Jagadīśa Tarkālaṅkāra must be older than Saṁvat 1688 or 1631 A.D., the date of copying a MS. of his *Tark-āmṛta*.[2] His anterior limit is fixed by his guru Rāmabhadra Sārvvabhauma. He might be placed tentatively in the last decade of the sixteenth and the first quarter of the seventeenth century.

He should be distinguished from Jagadīśa Tarkapañcānana Bhaṭṭācārya who wrote commentaries on the poems *Ānanda-laharī*, *Bhagavad-gītā*, *Mahimna-stava*, and on the rhetorical *Kāvya-prakāśa*. A MS. of the last commentary was copied by a pupil of the Tarkapañcānana in Śaka 1579 or 1657 A.D.[3]

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1 The *Maṇi-mayukha*, Sans. Coll. *Cat.* III, p. 324, No. 575, introd. verse 2:—

श्रीसार्व्वभौमस्य गुरोः पदाब्जं विद्यार्थिनां कल्पतरोः प्रणम्य ।
विनिर्म्मित श्रीजगदीशविप्रैर्विद्यानतामाद्यमणेर्मयूखः ॥ [२ ॥]

Cf. Madras *Catalogue*, No. 3022, and H. Shastri, *Notices*, I. p. 212, No. 213. For his Guru's work, see the *Śabda-śakti-prakāśikā*, pr. ed. Cal., p. 25:—इति पुनर्न्यायरहस्ये अस्मद्गुरुचरणाः .

2 The Deccan College *Catalogue*, No. 386 of 1881-2. A MS. of Jayadeva's *Śabd-āloka* was copied in Śaka 1516 or 1594 A.D. by one Jagadīśa Śarmmā (R. Mittra, *Notices* V. p. 299, No. 1975). Is he the same as Jagadīśa Tarkalaṅkāra ?

3 R. Mittra, *Notices*, IV. p. 224, No. 1651. Aufrecht, and following him the editor of the Benares edition of the *Śabda-śakti-prakāśikā*, have confounded the two. For some traditionary account of Jagadīśa, see H. Shastri's *Notices*, vol. I, introd. p. xvii.

11. RĀMABHADRA SIDDHĀNTAVĀGĪŚA BHAṬṬĀCĀRYA.

He wrote :—

(i) The *Śabda-śakti-prakāśikā-prabodhinī* or °*subodhinī*, a commentary on Jagadīśa Tarkālaṅkāra's work.

He calls Jagadīśa his *guru*, and in the final colophon he is called *Navadvīpīya*, a resident of Navadvipa town.[1]

As pupil of Jagadīśa, his time falls roughly in the second quarter of the seventeenth century.

12. JAYARĀMA NYĀYAPAÑCĀNANA BHAṬṬĀCĀRYA.

He wrote in Nyāya :—

(i) The *Tattva-cintā-maṇi-dīdhiti-guḍh-ārtha-vidyotana*, a sub-commentary of Śiromaṇi's *Dīdhiti*.

(ii) *Tattva-cintā-maṇy-āloka-viveka*, a sub-commentary on Jayadeva's *Āloka*.

(iii) The *Nyāya-siddhānta-mālā*, a commentary on the first 4 to 7 sūtras of Gotama's *Nyāya-sūtra*.

(ii) The *Śabd-ārtha-mālā*, on Śabda or words.

And in Vaiśeṣika,—

(v) The *Guṇa-dīdhiti-vivṛti*, a sub-sub-commentary on the *Dīdhiti*, the sub-commentary of Varddhamāna's commentary on Udayanācārya's *kiraṇāvalī*.

(vi) The *Nyāya-kusum-āñjali-kārikā-vyākhyā*, a commentary on Udayanācarya's kārikās or verses.

(vii) The *Padārtha maṇi-mālā*, or *Padārtha-mālā*, an original treatise examining the categories of the Vaiśeṣika. It was the best-known of his works and was commented upon by Janārdana Vyāsa and Laugākṣi Bhāskara.

And in rhetorics,—

(viii) The *Kāvya-prakāśa-tilaka*, a philosophical commentary on the rhetorical work of Mammaṭa.

Jayarāma was a pupil of Rāmabhadra Sārvvabhauma.[2]

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[1] Sans. Coll. *Cat.*, III, p. 266, No. 461, introd. verse 2 :—

गिरिमिव गुरुमिह नत्वा तत्कृतशब्दशक्तिप्रकाशिकायाः ।
श्रीरामभद्रकृती कुरुते टीकां मुदे सुधीयः ॥ [२ ॥]

and the final colophon :—इतिनवद्वीपीयमहामहोपाध्यायश्रीरामभद्रसिद्धान्त[-वागीश in R. Mittra, No. 194] भट्टाचार्य्यविरचिता शब्दशक्तिप्रकाशिकासुबोधिनी समाप्ता।

[2] The *Anumāna-dīdhiti-guḍh-ārtha-vidyotana* (Ind. Off. *Cat.*, p. 620, No. 1900, and Peterson's 6th *Report*, p. 15), introd. verse 1 :—

श्रीविश्वेशमशेषमङ्गलभुवं भूयोऽभिवन्द्यादरान्
मूर्ध्राधाय च रामभद्रचरणद्वन्द्वारविन्दद्वयम् ।
गुढाज्ञानघनावृता न विषयप्रोद्बोधिनी दीधितिम्
तस्माच्छ्रीजयराम एष तनुते गूढार्थविद्योतनम् ॥ [१ ॥]

His title *Nyāya-pañcānana* was sometimes shortened to Pañcānana and sometimes changed wrongly to Nyāya-vācaspati. The gods of his invocatory stanzas varied, now Śambhu, then Kṛṣṇa, sometimes Cid-ātman. Of his pupils, Janārdana Vyāsa wrote a commentary on his No. vii, and another, name not given, wrote a commentary on the Śakti-vāda of Gadādhara Bhaṭṭācārya.[1]

Jayarāma with Devanātha Tarkapañcānana is mentioned as an authority in the rhetorical *Eka-ṣaṣṭhy-alaṅkāra-prakāśa*, and in the *Alaṅkāra-sāra-sthiti* of Bhīmasena Dikṣita, composed in Saṁvat 1712 during the rule of Ajitasiṁha in Jodhapura.[2] He should be older than Saṁvat 1716 or 1659 A.D., the date of a MS. of his *Padārtha-mālā*. His anterior limit is fixed by his guru Rāmabhadra, His time falls roughly in the first quarter of the seventeenth century.

13. GAURĪKĀNTA SĀRVVABHAUMA BHAṬṬĀCĀRYA.

He wrote in Nyāya :—

(i) The *Bhāvārtha-dīpikā*, a commentary on the *Tarka-bhāṣā*, an elementary treatise of Nyāya by Keśava Miśra. In this commentary are named the *Dīdhiti* (occasionally criticized), the *Tarka-bhāṣā-prakāśa-kāra* (Govardhana), and Balabhadra, two other commentators of the original work. Gaurīkānta is named several times and is criticized in Mādhavadeva's commentary, the *Tarka-bhāṣā-sāra-mañjarī*.

(ii) The *Sad-yukti-muktāvalī*. No MS. found yet. Quoted in No. i.

And in other branches,—

(iii) The *Ānanda-laharī-tarī*, a commentary on Śaṅkarācārya's poem to Śakti.

(iv) The *Vidagdha-mukha-maṇḍana-viṭikā*, a commentary on Dharamadāsa's work on rhetorical enigmas.

Gaurīkānta was of Gauṛiya Rāṛhā family, born in the northern part of Gauṛa. He got favours of the king by composing many nibandhas.[3]

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[1] Madras *Catalogue*, No. 4303, introd. verse 2 :—

शक्तिनं शक्तिवादव्याख्यायामुत्कटाशक्तौ ।
शरणं जयरामगुरोश्चरणस्मरणस्य सन्निधीकरणम् ॥ [२ ॥]

[2] R. Mittra, *Notices*, X. p. 209, No. 4084.

[3] The *Ānanda-laharī-tarī* (R. Mittra, *Notices*, VII, p. 245, No. 2490), end verse and colophon :—

यो नानाविधशास्त्रतर्कनिपुणश्चक्रे निबन्धान् बहून्
पूजां भूरिमहीभुजां सदसि यो लेभेऽतिधीमान् कविः ।
यो गौडोत्तरदेशदिग्गज इह श्रीसार्वभौमो महान्
भट्टाचार्य्य इमां स एष विदधे टीकां मुदे वाग्विदां ॥ [१ ॥]

He must be older than Saṁvat 1771 or 1714 A.D., the date of a MS. of his *Ānanda-laharī-tarī*, and older than his critic Mādhavadeva, a MS. of whose *Nyāya-sāra* is dated Saṁvat 1751 or 1694 A.D. He must be later than the Tāntrik Pūrṇānanda, whose *Syāmā-rahasya* is quoted in the said *Tarī* and who wrote the *Ṣākta-krama* in Śaka 1493 (1571 A.D.) and the Tāntrik *Tattva-cintā-maṇi* in Śaka 1499 (1577 A.D.). He is also later than Govardhana Miśra (the *Prakaśa-kāra* quoted in his No. i), whose elder brother Padmanābha composed the *Vira-bhadra-campu* in 1578 A.D.[1] Gaurīkānta's time thus falls roughly in the first quarter of the seventeenth century.

14. BHAVĀNANDA SIDDHĀNTAVĀGĪŚA (BHAṬṬĀCĀRYA).

He wrote :—

(i) The *Tattva-cintā-maṇi-dīdhiti-prakāśikā*, a sub-commentary of Raghunātha's *Dīdhiti*. It was a standard work, familiarly known as *Bhāvānandī*. It seems to have been used more at Benares and other places outside Bengal, and was commented upon by outsiders like Kṛṣṇamittra, Dinakara and Mahādeva, and criticized by Vajrataṅka, a southerner. In fact Mahādeva distinctly alleges that the work had not been appreciated by the paṇḍits of Gauṛa.[2]

(ii) The *Pratyakṣ-āloka-sāra-mañjarī*, a sub-commentary of Jayadeva's *Āloka*.

(iii) The *Tattva-cintā-maṇi-ṭīkā*, a commentary directly on Gaṅgeśa's work.

(iv) The *Kārak-ādy-artha-nirṇaya*, or *Kāraka-vivecana*, treating of the case-endings and other grammatical terms, said in the colophon to be part of a longer work, the *Śabda-khaṇḍa-sāra-mañjarī*, on the philosophy of grammar.

Bhavānanda is in some MS. given a wrong title *Bhaṭṭācārya Tarkavāgīśa*. His grandson Rudra Tarkavāgīśa Bhaṭṭācārya, son of Rāmeśvara, wrote a commentary on his No. iv. Bhavānanda was the preceptor of Rāghavendra Śatāvadhāna Bhaṭṭācārya, the father of Rāmadeva Cīrañjīva.[3]

इति गौड़ीयराढान्वयसच्छ्रोत्रीयवंशजगौरीकान्तसार्व्वभौमभट्टाचार्य्यविरचित
आनन्दलहरीटीका समाप्ता ॥

[1] Peterson's 6th *Report*, No. 323 ; and 4th *Report*, No. 448.

[2] Mahādeva's *Bhāvānandi-prakāśa* (Ind. Off. *Cat.*, p. 622, Nos. 1906-10), introd. verse 7 :—

अनालोच्य सिद्धान्तवागीशवाचां
हृद्याल्पितैः पण्डितैर्गौडजातैः ।
यदुद्भावितं दूषणाभासवृन्दं
तदुद्धारणार्थो ममोद्योग एषः ॥ [१ ॥]

[3] The *Vidvan-moda-taraṅginī* of Cirañjīva, introductory verses.

Bhavānanda as preceptor of Rāghavendra must be a generation older than him. Rāghavendra having compiled the smṛtic work *Rāma-prakāśa* attributed it to his patron Kṛpārāma, who is said to have been favoured by the Delhi Emperors Jehāngir and S̱hāhjehan.[1] So Bhavānanda's time falls in the first quarter of the seventeenth century.

15. RUDRA NYĀYAVĀCASPATI BHAṬṬĀCĀRYA.

He wrotein Nyāya :—

(i) The *Tattva-cintā-maṇi-dīdhiti-parīkṣā*, a sub-commentary on Raghunātha's *Dīdhiti*, quoted in his *Padārtha-khaṇḍana-vyākhyā* (No. iii).

And in Vaiśeṣika :—

(ii) The *Kiraṇāvalī-prakāśa-vivṛti-parīkṣā* or *Bhāva-prakāśikā*, a sub-sub-commentary on Raghunātha's sub-commentary.

(iii) The *Padārtha-khaṇḍana-vyākhyā*, a commentary on Raghunātha's polemical work.

And in poetry,—

(iv) The *Bhāva-vilāsa*, a poem in praise of the prince Bhāvasiṁha, son of Mānasiṁha, the Rājput Governor of Bihar and Bengal.

(v) The *Bhramara-dūtaṁ*, on Rāma's message to Sītā during separation through a bee.

(vi) The *Vṛndāvana-vinoda-kāvya*, in praise of Kṛṣṇa, and of his early sports in Vṛndāvana.

Rudra Nyāyavācaspati was son of Vidyānivāsa Bhattācārya and grandson of Vidyā-vācaspati who had been honoured by the king of Gauṛa.[2] Viśvanātha Siddhāntapañcānana was his younger brother, and Govinda Bhaṭṭācārya Cakravartti was his son.

Rudra must be older than Saṁvat 1670 or 1613 A.D., when a MS. of his *Pratyakṣa-maṇi dīdhiti-vyākhyā* (No. i) was copied.[3] By order of his father Vidyānivāsa copies of the *Kalpa-taru*, the smṛtic digest of Lakṣmīdhara (Naiyatakālika and Dāna Khaṇḍas), were copied in Śaka 1510 or 1588 A.D.[4] So Rudra must be later than this date. His time is further fixed by the poem composed in honour of Bhāvasiṁha, whose father

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[1] The *Rāma-prakāśa* (Ind. Off. *Cat.*, p. 502, No. 1600-2), introd. verses 4 and 6. Paṇḍit H. Shastri would bring Cirañjīva's date a century later (see p. 33, note 4).

[2] The *Bhramara-dūtaṁ* (H. Shastri, *Notices*, II. p. 135, No. 153), end verses 1 and 2; H. Shastri, the *Bhāṣā-pariccheda*, J A.S.B., 1910, p. 312. Vidyā-vācaspati is named as a smṛtic writer in Raghunandana's Durgotsava Tattva; while Vidyānivāsa compiled a smṛtic work, the *Dvādaśa-yātrā-prayoga*, on the twelve festivals of Jagannātha

[3] R. Mittra, *Notices*, IV, p. 127, No. 1547, final colophon:—संवत् १६७० । आश्विने ।

[4] For the Naiyatakālika MS., see R. Mittra, *Notices*, VI, No. 2183: and for the Dāna MS., Ind. Off. *Cat.*, p. 409, No. 1385.

Mānsiṁha was governor of Bengal from the 38th to the 50th year of Akbar's reign or from 1593 to 1605 A.D. Rudra's time thus falls in the last decade of the sixteenth century and the first quarter of the seventeenth.

Rudra Nyāyavācaspati should be distinguished from the later Rāmarudra Tarkavāgīśa Bhattācārya, son of Rāmeśvara and grandson of Bhavānanda Siddhāntavāgīśa, who wrote a number of philosophical works, familiarly known as *Raudrī*.[1]

16. VIŚVANĀTHA SIDDHĀNTAPAÑCĀNANA BHAṬṬĀCĀRYA.

He wrote in Nyāya :—

(i) The *Alaṅkāra-pariskāra*, on the nature of verb and the meaning of tenses and moods.

(ii) The *Naña-vāda-ṭīkā*, a commentary on Raghunātha's negative particles

(iii) The *Nyāya-sūtra-vṛtti*, a commentary on the original work of Gautama, in five Adhyāyas.

(iv) The *Suvartha-tattv-āloka* or *Kāraka-cakra*, on the function of cases.

And in Vaiśeṣika,—

(v) The *Nyāya-tantra-bodhinī* or *Nyāya-bodhinī*.

(vi) The *Padārtha-tattv-āloka*, a commentary on Raghunātha's *Padārtha-khaṇḍana*.

(vii) The *Bhāṣā-pariccheda*, an elementary treatise in verse of the Vaiśeṣika system with a commentary of his own, the *Nyāya-siddhānta-muktāvalī*, shortened to *Siddhānta-muktāvālī* or simply *muktāvalī*. This work was widely read and was sub-commented upon by half a score of writers.

And in metres,—

(viii) The *Piṅgala-prakāśa*, a commentary on the Prākṛta *Piṅgala chandaḥ sūtra*.

Viśvanātha was son of Vidyānivāsa Bhattācārya and younger brother of Rudra Nyāyavācaspati Bhattacarya.

He composed the *Bhāṣā pariccheda* in Śaka 1556 or 1634 A.D. at Vṛndāvana.[2] So his time falls in the first and second quarters of the seventeenth century.

17. GOVINDA ŚARMMĀ.

He wrote :—

(i) The *Nyāya-saṁkṣepa*, an elementary treatise of Nyāya based on Gautama's *Nyāya-sūtra*, in kārikās or verses with a commentary ;

(ii) And possibly the *samāsa-vāda*, a short tract on compound words.

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[1] As pointed out by Pandit H. Shastri, Aufrecht has confounded the two (J.A.S.B., 1910, p. 314).

[2] J.A.S.B., 1910, p. 313.

And in Vaiśeṣika,—

(iii) The *Padārtha-khaṇḍana-vyākhyā*, a commentary on Raghunātha's critique.

Govinda Śarmmā calls himself in the *Nyāya-saṁkṣepa* son of Nyāya-vācaspati, who can be no other than the above-named Rudra, the son of Vidyānivāsa.[1] In the other two works the final colophons ascribe them to Govinda Bhaṭṭācārya Cakravarttī who may or may not be identical with the son of Rudra.

As son of Rudra, Govinda's time falls roughly in the second quarter of the seventeenth century.

18. HARIRĀMA TARKAVĀGĪŚA BHAṬṬĀCĀRYA.

He wrote in Nyāya :—

(i) The *Tattva-cintā-maṇi-ṭīkā*, a commentary on Gaṅgeśa's work, found in fragments only, with the suffix *vicāra*, or *vāda* at the end. It was quoted by Gadādhara (Hall).

(ii) The *Ācārya-mata-rahasyaṁ*, on Udyanācarya's theory of syllogism.

(iii) The *Ratna-koṣa-vāda* or ◌*vicāra*, criticizing that Vaiśeṣika work.

And in Mīmāṁsā,—

(iv) The *Sva-prākāśa-rahasya* or *Bhaṭṭa-mata-siddhānta*, a discussion of Kumārila Bhaṭṭa's views.

The title of Harirāma is in MSS. changed now and then to *Tarkālaṅkāra*, *Tarkālaṅkāra-vāgīśa* or *Nyāyalaṅkāra Tarkavāgīśa*. He was *guru* of Raghudeva Nyāyālaṅkāra Bhaṭṭācārya, and according to Hall, of Gadādhara Bhaṭṭācārya.

Harirāma Tarkavāgīśa must be older than Saṁvat 1711 or 1644 A.D., the date of a MS. of his *Vāda-buddhi-vicāra* a section of No. i (Hall). As the guru of Raghudeva, he might be placed in the first quarter of the seventeenth century. Whether this Naiyāyika is identical with the grammarian Harirāma, author of the *Kātantra-vyākhyā-sāra*,[2] I have not sufficient information to decide.

19. RAGHUDEVA NYĀYĀLAṄKĀRA BHAṬṬĀCĀRYA.

He wrote in Nyāya :—

(i) The *Tattva-cintā-maṇi-guḍh-ārtha-dīpikā*, a commentary on Gaṅgeśa's work, familiarly known as *Raghudevī*.

(ii) The *Navīna-nirmāṇa*, a later and revised commentary on the *Tattva-cintā-maṇi*.

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[1] The *Nyāyā-saṁkṣepa* (Ind. Off. *Cat.*, p. 644, No. 1983), introd. verse 3 :—

न्यायवाचस्पतेः सूनोरियं गोविन्दशर्म्मणः ।
कृतिः कृतधीयां भूयादमन्दानन्ददायिनी ॥ [३ ॥]

[2] Ind. Off. *Cat.*, p. 200, No. 753 ; H. Shastri, *Notices*, p. 49, No. 52.

(iii) The *Dīdhiti-ṭīkā*, of which only fragments exist such as Nañ-vāda, Ākhyāta-vāda, etc., including discussions thereof.

And in Vaiśeṣika,—

(iv) The *Nyāya-kusum-āñjali-kārikā-vyākhyā*, a commentary on the verses of Udayanācārya.

(v) The *Dravya-sāra-saṅgraha*, a commentary on Udayanācārya's *Kiraṇāvalī* (Dravya section).

(vi) The *Padārtha-khaṇḍana-vyākhyā*, a commentary with occasional criticism of Raghunātha's polemical treatise.

Raghudeva calls his guru Tarka-vāgīśvara,[1] probably to be identified with Harirāma Tarkavāgīśa, whom he follows now and then almost verbatim.

Raghudeva must be older than Saṁvat 1733 or 1676 A.D., the copying date of a MS of his *Anumiti-parāmarśa-vāda*. He is older than Yaśovijaya Gaṇi (1608-1688 A.D.) who quotes him in his *Aṣṭa-sāhasrī-vivaraṇa*.[2] His anterior limit is fixed by his guru Harirāma. He may be placed in the second quarter of the seventeenth century.

20. GADĀDHARA BHAṬṬĀCĀRYA.

A famous commentator. He wrote in Nyāya:—

(i) The *Tattva-cintā-maṇi-dīdhiti-prakāśikā*, an exhaustive sub-commentary of Raghunātha's *Dīdhiti*. It practically superseded all previous commentaries on the *Dīdhiti*. The work was so voluminous that complete copies are not found. MSS. of the different sections (called vādas) are found scattered not only in Bengal but in various other parts of India, specially in South India. They are familiarly known as *Gādādharīs*. They were commented, criticized and defended by dozens of writers, mostly non-Beṅgalis.

(ii) The *Tattva-cintā-maṇi-vyākhyā*, a commentary directly on Gaṅgeśa's work.

(iii) The *Tattva-cintā-many-āloka-ṭīkā*, a sub-commentary on Jayadeva's *Āloka*, also called *Gādādharī*.

(iv) The *Muktāvalī-ṭīkā*, a commentary on the *Sadyukti-muktāvalī* of Gaurīkānta Sārvvabhauma.

And in Vaiśeṣika,—

(v) The *Ratna-koṣa-vāda-rahasya*, a criticism of that Vaiśeṣika work.

Gadādhara is in some MS. given the title *Nyāya-vāgīśa Bhaṭṭācārya*, and is given by Hall the title *Nyāya-siddhānta*

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[1] The *Naña-vāda-vyākhyā* (Madras *Catalogue*, No. 4254), introd. verse 1:—

शिवं प्रणम्य तत्पश्चात् तर्कवागीश्वरं गुरुम् ।
क्रियते रघुदेवेन नञ्वादे सुविवेचनम् ॥[१॥]

[2] J.A.S.B., 1910, p. 468.

vāgīśa. Hall makes him a pupil of Harirāma (Tarkavāgīśa) but quotes no authorities.[1] In the final colophon of a MS. he is described as resident of Navadvīpa and in another as *Gauradeśīya.*[2]

Gadādhara Bhaṭṭācārya must be older than Saṁvat 1732 or 1675 A.D., the date of a MS. of his *Vyutpatti-vāda.* His *Śakti-vāda* was commented upon by a pupil of Jayarāma.[3] He cannot therefore be much later than that writer. He might be placed in the second quarter of the seventeenth century.

Gadādhara Bhaṭṭācārya, the Naiyāyika, is probably to be distinguished from Gadādhara Cakravarttī Bhaṭṭācārya, who wrote a commentary on the rhetorical *Kāvya-prakāśa.*[4]

21. NṚSIṀHA PAÑCĀNANA BHAṬṬĀCĀRYA.

He wrote in Nyāya :—

(i) The *Nyāya-siddhānta-mañjarī-bhūṣā*, a commentary on Jānakīnātha's work.

Nṛsiṁha Pañcānana must be older than Saṁvat 1730 or 1673 A.D., the date of a MS of his *Bhūṣā.* He praises highly his father Govinda,[5] who may be Govinda the son of Rudra. Anyhow his time falls in the third quarter of the seventeenth century, if not earlier.

22. RĀMADEVA CIRAÑJĪVA BHAṬṬĀCĀRYA.

He wrote :—

(i) The *Vidvan-moda-taraṅginī*, a poem in eight taraṅgas or waves, in which the principal philosophical systems are reviewed, with a leaning towards Nyāya. It quotes his father Rāghavendra's *Mantr-ārtha-dīpa* and *Rāma-prakāśa.*

And in other lines,—

(ii) The *Kāvya-vilāsa*, on poetics, in two *bhaṅgīs.*

(iii) The *Mādhava-campu*, a story of Krisṇa, in prose and verse.

(iv) The *Vṛtta-ratnāvalī*, on metres, the illustrative verses

[1] Hall, *Index*, p. 56. Some traditional stories about Gadādhara are given by Pandit Haraprasād Shastri in his *Notices*, Vol. I, Introduction, p. xvii.

[2] Sans. Coll. *Cat.* III, 558, and Ind. Off. *Cat.* p. 617, No. 1895.

[3] The *Śakti-vāda-vyākhyā*, Madras *Catalogue*, No. 4303.

[4] R. Mittra, *Notices*, IV, p. 116, No. 1527.

[5] The *Nyāya-siddhānta-māñjari-bhuṣā*, introd. verse 2 (Ind. Off. *Cat.*, p. 641, No. 1976):—

श्रीमच्छ्रीयुतगौडमण्डलमहो विख्यातसत्कीर्त्तिता-
स्तत्कालं कृतिनः परं सुकृतिनोः गोविन्दनामाभिधाः ।
तत्सूनुर्नृसिंह एष सुकृती भावं तु पञ्चाननो
बालानां हितकाम्यया स्फुटयति ह्याग्राह्य सिद्धान्तिते । [२ ॥]

and the final colophon :—संवत् १७३० ज्येष्ठवदि ४ शुक्रे समाप्तोऽयं पुस्तकः ॥

of which are mainly in praise of Yaśovanta Siṁha, son of Kṛpārāma.

In the long list of authors discussed in this paper Cirañjīva is the only one that gives some account of himself and of his family.[1] His family belonged to Kāśyapagotra Kulins, residents of Rāṛhāpura, Gauṛa. In that gotra arose Kāśīnātha, who for his skill in prognostications from omens and signs got the title *Sāmudrikācārya*. Kāśīnātha had three sons—Rājendra, Rāghavendra, and Maheśa. The second was the favourite of his father, and at the age of sixteen got for his memory the title *Śatāvadhāna Bhaṭṭācārya*. In his young days Rāghavendra was a pupil of Bhavānanda Siddhāntavāgīśa. From Rāghavendra was born the writer who was given the name of Rāmadeva by his father but Cirañjīva by his elders. He went to Benares and there studying the Śāstras, began to teach them. He speaks of having composed poems, works in Nyāya and in other Śāstras. The author is generally known by his title Cirañjīva.

Cirañjīva must be older than Saṁvat 1760 or 1703 A.D., the date of a MS. of his *Kāvya-vilāsa*.[2] His anterior limit is fixed by his father Rāghavendra Śatāvadhāna, who wrote the smṛtic digest *Rāma-prakāśa*, and attributed it to his patron Kṛpārāma favoured by Jehāngir and Shāhjehan.[3] His father therefore flourished in the second quarter of the seventeenth century. His son Cirañjīva's time thus falls in the third quarter of the same century.[4]

23. RĀMARUDRA TARKAVĀGĪŚA BHAṬṬĀCĀRYA.

He wrote in Nyāya :—

(i) The *Tattva-cintā-maṇi-dīdhiti-ṭīkā*, a sub-commentary of Śiromaṇi's work.

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[1] See the introductory verses of the first *taraṅgiṇī* of the *Vidvan-moda-taraṅgiṇī*.

[2] The *Kāvya-vilāsa*, Ind. Off. *Cat.*, p. 344, No. 1192.

[3] The *Rāma-prakāśa*, Ind. Off. *Cat.*, p. 502, Nos. 1600-2, introd. verse 6 : -

श्रीमद्भूपसमूहवन्दितपदश्रीसाहजाहां कृपा-
पात्रं यादवरायवंशतनयो माणिक्यचन्द्रान्वयः ।
गौडक्षत्रकुलोद्भवो भुवि कृपारामाभिधो भूमिपो
ग्रन्थं धर्म्मकृतां कृते रचयितुं तस्मिन्मनो यो दधौ ॥[६॥]

For जाहांगीरमहीमहेन्द्रगणिता see its verse 4.

[4] Pandit Haraprasād Shastri says that Yaśovantasiṁha, the patron of Cirañjīva, was the Naib Dewan of Dacca, under Sujauddaula Nawab and was a resident of Western Bengal (*Notices*, III, Introd. p. xxiii). I have been unable to find any verification of these statements. The date in the Pandit's MS., Saka 1653, appears to me to be the date of its copying than of its composition.

(ii) the *Vyutpatti-vāda-vyākhyā*, a commentary on Gadādhara Bhattācārya's sectional work.

(iii) The *Kārak-ādy-artha-nirṇaya-ṭīkā*, a commentary on his grandfather Bhavānanda Siddhāntavāgīśa's philosophico-grammatical work.

And in Vaiśeṣika,--

(iv) The *Dīnakarīya-prakāśa-taraṅginī*, a sub-sub-commentary of Dinakara's sub-commentary of Viśvanātha's commentary, the *Siddhānta-muktāvalī.*

(v) The *Tattva-saṅgraha-dīpikā-ṭippaṇi*, a sub-commentary of Annam Bhaṭṭa's own commentary.

(vi) The *Siddhānta-muktāvalī-ṭīkā*, a sub-commentary of Viśvanātha's own commentary on his *Bhāṣā-pariccheda*, familiarly called the *Raudrī*.

Rāmarudra, or shortened to Rudra, was the grandson of Bhavānanda Siddhāntavāgīśa, and son of Śrīrāma or Rāmeśvara. He was probably pupil of Madhusūdana.[1] In one MS. the title *Tarkavāgīśa* is given to him.

His time must be later than Gadādhara, and later than Dinakara *alias* Mahādeva Bhaṭṭa.[2] As grandson of Bhavānanda he can not be much later. His time falls probably in the fourth quarter of the seventeenth century, if not earlier.

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[1] The *Siddhānta-muktāvalī-Raudrī* (Ind. Off. *Cat.*, p. 674, No. 2111) introd. verse 2 :--

तातं श्रीरामधीरेशं धीरं श्रीमधुसूदनं ।
नत्वा रुद्रेण सिद्धान्तमुक्तावली विभज्यते ॥ [२ ॥]

[2] Mahādeva's son Divākara composed the *Vṛtta-ratn-ākar-ādarśa* in Saṁvat 1770, or 1713 A.D. (Ind. Off. *Cat.*, p. 304, No. 1095).

19. Sunspots and Prominences.

By J. EVERSHED.

[With Plates XVII—XIX.]

Visitors to a solar observatory always ask: What is a sunspot? And to this question we can only reply that after studying them for three hundred years we do not know what they are. These strange dark patches on the sun's brilliant disc baffle us still. We examine them, photograph them, and analyse their light; we see that their positions and their development follow certain laws; we now know something about what is taking place in them; but their origin and the cause of the changes we see is as mysterious as ever. In fact, the more we know about them, the more mysterious they become.

We have gained one step, however, in being able to say what they are not. They are not, as was once thought, dark clouds floating in a sea of light; they are not, as Herschel believed, rifts in a burning atmosphere through which we see a cool, solid, habitable globe below. Even the intensely black centre of a sunspot—as it appears to us—can only be spoken of as cool or dark by contrast with the surrounding regions, for it also radiates light and heat, and is composed of nothing but gases.

Sunspots are of all sizes, from minute points scarcely visible on our photographs to huge round patches 30,000 miles in diameter, or great complex groups covering large portions of the sun's surface and becoming visible to the naked eye. Small spots often last only one day, or even a few hours, but those of a larger size frequently live for a month or more, passing out of sight on the western limb as the sun rotates and reappearing a fortnight later on the eastern limb, always changing in appearance. One very large group which was first seen in November, 1908, returned no less than six times, and did not die out until the end of April, 1909. The life histories of these long-lived spots differ, but there is a general likeness between them. At first one or two very small black spots usually appear, surrounded by bright calcium clouds; they quickly increase and develop, and smaller spots form around them: then these disappear or are absorbed into one of the main spots; finally a single spot remains which settles into a quiescent state and regular form, This also gradually diminishes and disappears.

In photographs of spots (see fig. 1) one sees the radial appearance of the grey "penumbra" which surrounds the

black "umbra," looking as if fine lines had been drawn from centre to circumference. This is one of the most striking features in any large spot when seen through a telescope, and spectroscopic investigation at Kodaikanal has shown that it indicates actual motion from the centre outwards. A sunspot is a centre of motion, gases flowing continually outward, horizontally to the sun's surface, and with a speed which increases regularly from the centre to the outer edges of the penumbra where it becomes about 2 km. per second; but the beginning and the end of this motion is hidden from us. Whence does the gas come which is always flowing out and whither does it go? At the centre of the spot there is no motion, and beyond the edge of the penumbra it ceases abruptly. The answer to this puzzle probably is that the outflowing gases are exceedingly tenuous, so that an almost imperceptible welling up at the centre from much denser regions below forms a sufficient supply to feed the stream; and at the outer edge the motion is probably lost to sight under bright clouds which are always banked up round sunspot regions. (See Fig. 1*a*.)

Another recently acquired fact is the discovery of Prof. Hale, that a powerful magnetic field exists in sunspots. This fact indicates the presence of a vortex of electrons, or of gases carrying electrons, but the vortex apparently exists in a region inaccessible to the spectroscope and below the region in which the radial movement just described is going on. There is also some evidence of a slow rotation of the higher gases, above the region of the radial movement, and Prof. Hale has obtained some very fine photographs in hydrogen light showing a spiral structure round sunspots.

It is a well-known fact that the passage of a large sunspot group over the sun's central meridian is often followed by a magnetic storm on earth, and that the movements of our magnetic needles are closely connected with the sunspot cycle. This cycle, during which the number and activity of sunspots waxes and wanes in an average period of eleven years, has been known and studied for many years. We are now, at the beginning of 1915, on an upward curve, and sunspots, which were very rare and very small in 1912 and 1913, are becoming more and more frequent. But what is the meaning of this cycle? What causes this rhythm in solar activity? We do not know.

The most striking features of the sun's disc are the sunspots: the most striking features at the limb are the prominences. The limb is photographed daily at Kodaikanal Observatory in calcium light, with a screen to shut out the light from the disc; and thus we obtain records of the uprushing flames composed of hydrogen and calcium which are always present in greater or lesser numbers and display the strangest forms in a wonderful variety.

Unlike sunspots, prominences are found all over the sun, from the equator to the poles, and they are most frequent in regions where no spots form. Large massive prominences, even when occurring in sunspot regions, are seldom found very near spots, and in fact seem to avoid their neighbourhood. Some of the smaller types, on the other hand, are never found except exactly over a sunspot: one of these types is a group of jets and streamers shooting out from a centre, so that it looks like a bursting rocket. (Fig. 2). Sometimes the streamers rising above a sunspot seem to fall again to the sun's surface in the form of arches (fig. 3) but curiously enough the arch often becomes narrower at the base, a form which could not be taken by a stream of gas acted on by gravity alone. On July 31st, 1908, a very remarkable prominence in the form of a single arch or ring stood over a sunspot (fig.4).

Prominences not connected with sunspots assume many different forms, and some of them change very rapidly. Sometimes they are like pillars or pyramids, sometimes like trees or sheaves of corn, sometimes a cloudy mass hovers above the sun's surface, or is attached to it only by a few fine filaments. One was photographed on February 18th, 1908, which gradually rose to an immense height (figs. 5, 6). It was scarcely visible on the first plate taken at 8h. 23m., but was a very bright compact mass at 9h. 38m. Throughout the day it rose higher and higher, and at last the upper edge was 260,000 miles above the sun's surface, that is to say more distant from it than the moon is from the earth. The photographs show that the mass remained joined to the sun by one long slender filament, which looked as if it held the prominence and caused it to swing out in a curve as it rose. The most remarkable fact about the movement was that it accelerated in speed: between 10 and 11 A.M. the prominence was rising at the rate of a little over 1 km. per second; at 2 P.M. at over 6 km.; between 4 and 6 P.M. the speed increased to 37 km. and when last measured, as the sun was getting low, the speed attained was 84 km. per second.

It is evident, therefore, that some repulsive force acts on prominences as on comets' tails, and light-pressure very probably is concerned in this. But we are not yet able to explain what forces cause prominences to take the many strange and varied shapes which our photographs reveal.

EXPLANATION OF PLATE XVII.

Fig. 1. Sunspots photographed on Sept. 12, 1908, at Kodaikanal Observatory.

Survey of India Offices, Calcutta, 1915.

Sunspots.

EXPLANATION OF PLATE XVIII.

Fig. 1*a*. Sunspots photographed in Calcium light, Sept. 12, 1908.

Figs. 2 & 3. Prominences over Sunspots.

Fig. 8. Filamentary prominence.

Photographed at Kodaikanal Observatory.

Sunspots and Prominences.

EXPLANATION OF PLATE XIX.

FIGS. 5 & 6. A rapidly rising prominence Feb. 18, 1908.

FIG. 7. A rare form of prominence. Feb. 21, 1909.

,, 4. The ring-shaped prominence of July 21, 1908.

Photographed at Kodaikanal Observatory.

Prominences

20. Note on a Buddhist Sculpture from Kandy, Ceylon.

By J. Ph. Vogel, Ph.D.

[With Plates XX—XXIV.]

The Buddhist sculpture which forms the subject of the present paper belongs to Lord Carmichael who has courteously allowed me to have it photographed. His Excellency informs me that it came first into the possession of a British officer at the capture of Kandy in 1815, but of its previous history nothing is known. It will be seen in the course of this paper that there is good reason to suppose that the sculpture is not of Sinhalese origin, but came from the Indian Continent, most probably from Bodh Gayā, whence it may have been brought to Ceylon by a Buddhist pilgrim. It measures not more than $6\frac{1}{4}''$ or 16 cm. in height and, considering its small size, it will be realized that the carving is of exquisite fineness. (See Plate XX).

As to the subject, we recognize in the central figure Gautama Buddha seated cross-legged on a conventional lotus flower. The position of the right hand stretched down towards the earth indicates that he is shown here at the supreme moment of his Enlightenment or Bodhi. Over his head we notice indeed the foliage of the sacred Bodhi tree of Bodh Gayā, seated under which he obtained supreme wisdom and Buddhahood. The Indian sculptors evidently found it impossible to express directly the mental process which brought about that all-important change in the Master's life. They, therefore, chose the event which immediately preceded it—Buddha's temptation, or more correctly, the assault by Māra the Evil One (Sanskrit *Māra-dharṣaṇa*).[1] It was then that the Buddha called upon the earth goddess to bear testimony to his good deeds, and this is indicated by the peculiar pose of the right hand. In Buddhist iconography this posture (*mudrā*) is designated as "the attitude of touching the earth" (Skt. *bhūmisparśamudrā*[2]). In the miniature figure kneeling on a lotus-flower beneath Buddha's right hand we may perhaps recognize the earth goddess (Skt. Mahāpṛithivī or Vasundharā) holding up a treasure vase with both hands. The corresponding figurine to the proper left, likewise seated on a

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[1] In the *Lalitavistara* the 21st chapter is called *Māradharṣaṇa* (ed. Lefmann, pp. 299-343) and the 22nd *Abhisambodhana* (pp. 343–357).

[2] The designation is not quite appropriate as, according to the Pali text, the Bodhisattva did not exactly touch the earth, but stretched forth his hand towards it. *Cīvaragabbhantarato dakkhiṇahatthaṁ abhinīharitvā .....mahāpaṭhavīabhimukhaṁ hatthaṁ pasāresi.* (*Jātaka*, ed. Fausböll, Vol. I, p. 74).

lotus-flower, I am unable to identify. The two somewhat larger figures supporting Buddha's lotus seat are probably demigods—either *nāgas* or *yakṣas*.

In the scene of Buddha's "temptation," as it is found in sculptures of the Gupta period, we usually find Māra standing to the Buddha's right. Like the Greek Erōs he carries a bow and is moreover often distinguished by a satellite carrying a *makara* standard. For it should be remembered that Māra is only another name for Kāma the god of love. Māra's three daughters who played a prominent part in the temptation are usually shown to the Buddha's left. In the present instance, however, we find the Buddha flanked by two male attendants in whom we recognize the Bodhisattvas Avalokiteçvara and Maitreya. Over their heads there rise two tiers of miniature figures partly mounted on animals which form, as it were, an arch of which the foliage of the Bodhi tree forms the apex. These figurines, as is evident from their demoniacal appearance, represent the host of Māra.

It will be seen that around the group just described seven smaller scenes are arranged, three to the left, three to the right and one above. In the scene nearest the right hand of the central figure we recognize the birth of the future Buddha. His mother Māyā grasping a branch of the *sāl* tree is supported by her sister Prajāpatī standing to her left, whilst the new-born Bodhisattva is apparently shown twice on her right.

Over the Nativity scene we find Buddha's first sermon at Benares represented in the usual fashion. The Buddha is seated cross-legged in the attitude known as that of "the wheel-of-the-law" (Skt. *dharmacakra-mudrā*), the two hands being held in front of the breast with the fingers joined in the manner of a person arguing out a case. The wheel and the deer on the pedestal symbolize the particular subject more definitely, for it was in the Deerpark (Sanskrit *mṛigadāva*, Pali *migadāya*), the modern village of Sārnāth near Benares, that after his Enlightenment Buddha "began to turn the wheel-of-the-law," in other words, taught his doctrine for the first time. The five miniature figures on both sides of the preaching Buddha are his first converts, the Pañcavārgīyas, or 'the five of the blessed band.'

The next scene relates to the miraculous submission of the *mast* elephant Nālāgiri which was let loose against the Buddha by his malicious cousin and rival Devadatta. The elephant, which is very diminutive in size, is shown twice, once lifting up its trunk and the second time kneeling down in submission.

The corresponding scene on the right hand side is Buddha's descent from the Trayastriṃça Heaven after preaching the law to his mother Māyā, who had died a week after his birth. He is attended by Brahmā to his right, and Indra to his left, the latter holding a parasol over the Buddha's head. The little figure kneeling at the Master's feet must be the nun Utpalavarṇā

who was the first to receive him on his return from heaven. The triple ladder by which Buddha and his two satellites descended is indicated beneath the lotus on which he is standing.

The next scene refers to the great miracle of Çrāvastī, which consisted in Buddha being seen preaching at the same moment in various places. Hence the triple figure of the Buddha seated in the preaching attitude as in the corresponding scene to the left. The two Nāga figures supporting Buddha's lotus seat are also a cognizance of the subject.

The next Buddha figure is seated in the European fashion. Here we find the legend of the monkey who offered Buddha a pot of toddy and after this meritorious act committed suicide to be reborn as a *deva* or celestial being. The monkey is shown not less than four times: first climbing up the palmyra tree, next approaching Buddha with the bowl of toddy, then jumping into a well, and lastly rising in his divine shape. The little elephant in the corner must be the elephant which fed Buddha in the Pārileyaka forest.

Finally we have at the top of the sculpture the scene of the Buddha's death or *Nirvāṇa*. The dying Buddha is lying on his right side with his head resting on his right hand in strict accordance with the sacred text. The twin *sāl* trees of Kuçinagara (Pali Kusinārā) are shown on both sides of the couch, the tree spirits emerging from among the foliage. The mourning figures surrounding the Buddha's death-bed cannot be identified individually. But the one occupying the centre in front of the couch is perhaps Subhadra, the Master's last convert, and the one kneeling at the Buddha's feet is possibly Mahākāçyapa.

The sculpture, therefore, represents the eight principal events of the Buddha's life which were a favourite subject of Buddhist art. The Sārnāth excavations have yielded a stele (now in the local museum) in which these same eight scenes are carved [1] (Plate XXI). It belongs to the Gupta period and is the earliest known representation of the eight scenes on a single piece of sculpture. The lower portion of a similar slab, also from Sārnāth (Plate XXII), is preserved in the Indian Museum [2] and, though incomplete, is interesting as it contains more detail than the stele in the Sārnāth Museum. Much more common are slabs containing only what we might call the four major scenes, namely the birth, the enlightenment, the first sermon and the death. Two well-preserved specimens are found

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[1] Cf. J. H. Marshall and S. Konow, *Sārnāth*, *A. S. R.* for 1906-7, pp. 92f. no. 58; plate XXVIII, 4; and Foucher, *Le grand miracle du Buddha à Çrāvastī*, *J. A.*; serie 10, Tome XIII (1909), p. 45, planche I.

[2] J. Anderson, *Catalogue and handbook of the archaeological collections in the Indian Museum*, part II, pp. 4ff. No. S. 1.

among the Sārnāth sculptures in the Indian Museum (Nos. S. 2 and 3).[1]

It is very curious that on a similar stele from Amarāvatī,[2] now in the Madras Museum, we find the Nativity replaced by the Great Renunciation and the Nirvāṇa by a Stūpa. (Plate XXIII). The Great Renunciation (Skt. *mahābhiniṣkramaṇa*) is in a certain sense the future Buddha's spiritual birth and could, therefore, very appropriately replace the scene of his nativity. The scene of his death, on the other hand, could very suitably be symbolized by the *stūpa*, *i.e.* the monument primarily intended to contain his ashes. I may mention in this connection that in an early Pali text, the Book of the Great Decease or *Mahāparinibbāna-sutta*, it is enjoined on the faithful by Buddha himself to visit the sites of his birth, enlightenment, first sermon and death, in other words, Kapilavastu (more particularly the Lumbinī Garden near that place), Bodh Gayā, Benares and Kuçinagara.[3] Up to the present day these are considered the four great places of pilgrimage and are largely visited by Buddhist pilgrims from Ceylon, Further India, Japan and Tibet. It is, therefore, only natural that the four chief events which were supposed to have taken place at those localities play a prominent part in Buddhist sculpture.

It is impossible to decide about what time the four places of pilgrimage were extended to eight. In Graeco-Buddhist sculpture I do not know of any representation of the eight scenes on one slab. A miniature *stūpa* drum in the Mathurā Museum is carved with a series of eight panels, of which four represent the major scenes: the birth, the enlightenment, the first sermon and the death.[4] The four remaining panels refer to the descent from the Trayastriṁça Heaven, the offering of the four bowls, the visit of Indra to Buddha in the Indraçaila Cave, and perhaps the Buddha's stay in the Jetavana at Çrāvastī. It will be seen that the latter four scenes only partially correspond to the four minor scenes of the Gupta sculptures. It would, therefore, seem (if we are allowed to judge from the evidence of one single piece of sculpture) that at the time when the Mathurā school flourished, viz. in the Kuṣān period, those four minor scenes had not been definitely fixed. In fact, from the Amarāvatī stele mentioned above, we may conclude that there still existed some

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[1] Anderson, *Catalogue*, Vol. II, pp. 6f. Burgess, *Ancient Monuments*, Part I; plates 65-68.

[2] J. Burgess, *The Buddhist Stupas of Amaravati and Jagayyapeta*, pp. 77f.; plate XLI, 6, for the inscription see plate LVII, No. 19. It is interesting to compare figure 27 on p. 89.

[3] *The Book of the Great Decease* (Sacred Books of the East Vol. XI), pp. 90f.

[4] Cf. my *Etudes de sculpture bouddhique*, No. III, *Les bas-reliefs du Stūpa de Dhruv Tila* in *Bulletin de l'Ecole Française d'Extrême-Orient*, Tome VIII (1908), pp. 492 ff.

hesitation even regarding one of the major scenes, namely that of Buddha's birth.[1]

During the Gupta period the eight scenes were evidently fixed and in mediaeval sculpture they are almost the only events of Buddha's life which are regularly portrayed in a more and more stereotyped and abbreviated form.

Now I wish to offer a few remarks regarding the provenance and date of the sculpture under discussion. Although it was acquired in Ceylon, there is good reason to suppose that it came originally from the Indian Continent.

In the local museum at Pagān (Burma) I noticed a small sculpture found locally (Plate XXIV) which bears a remarkable resemblance to the piece which forms the subject of my present paper. Here also we have the eight scenes arranged in exactly the same order and treated in very much the same fashion. The Pagān sculpture measures 8″ or about 20 cm. in height and is, therefore, slightly larger than the one from Ceylon which, as we saw, is 16 cm. high. It is No. 43 of the Museum register.

The Indian origin of both these sculptures becomes all the more probable, if we compare a stone fragment found by Mr. F. O. Oertel in the course of his excavations at Sārnāth near Benares in 1904-05.[2] Evidently this fragment belonged to a sculpture of exactly the same type as those from Kandy and Pagān. It measures only 6½″ or 16·5 cm. in height and retains the three scenes on the left hand side and the *Nirvāṇa* above. The central group of the Bodhi can still be traced.

We can, perhaps, determine more definitely from which locality in India these sculptures originated. Whereas in the steles of the Gupta period referred to above the carved surface is divided into eight (or four) panels of equal size, it will be noticed that in these later sculptures the enlightenment takes the central and most prominent position, the other seven scenes being arranged around, as if they were only of secondary importance. The fact of such prominence being given to the enlightenment leads us at once to associate these sculptures with Bodh Gayā where that all-important event in the Master's life is believed to have taken place. Gayā has always been the principal goal of Buddhist pilgrimage and we can well imagine that small-sized sculptures of this kind were brought back by Burmese and Ceylonese pilgrims as mementoes of their visit to that most sacred spot.

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[1] It is curious that on a carved lintel slab from Muttra now in the Lucknow Museum, the birth scene seems to be replaced by a figure of the Sun-god on his quadrigae.

In this connection it should be remembered that, according to Hiuen Tsiang, the pillar marking the site of the Tathāgata's birth was surmounted by the figure of a horse.

[2] *A.S.R.* for 1904-5, p. 84; fig. 8.

The date of the sculptures seems to confirm this conclusion. On the evidence of style they may be safely ascribed to the latest phase of Buddhist art in India, which had its centre in the ancient Magadha country, i.e. Southern Behar. The Magadha school of sculpture has not yet been studied in detail so that it is difficult to fix the date of these sculptures more definitely. I should, however, be inclined to assign them to the period from 1000 to 1200 A.D., in other words, the two centuries immediately preceding the Muhammadan conquest.

This assumption well agrees with the evidence to be derived from the bas-relief in the Pagān Museum. Mr. Taw Sein Ko, to whom I owe the excellent photograph reproduced in plate XXIV, informs me that the little sculpture in question was found in the Ka-zun-o Pagoda which was built by Narapatisithu, King of Pagān, about the year 1183 A.D. The Pagoda is in a ruined condition and, a portion of it having collapsed, a Buddhist monk residing in the vicinity found the sculpture among the *débris.* The presumption, therefore, is that it was originally buried in the structure of the Pagoda and that it dropped to the ground along with the fallen bricks.

The Pagān Museum contains another little sculpture of the same size and type. It was found near the Manuha Temple and is No.44 of the local collection. Here the treatment is somewhat simpler and some of the scenes are more or less defaced.

I do not wish to conclude the present paper without having drawn attention to a fascinating study on the origins of Buddhist art, which has recently been published by so good an authority as M. Alfred Foucher, Professor of Sanskrit at the Sorbonne.[1]

The distinguished author seeks the origin of Buddhist art in the ancient and universal custom of pilgrims to bring home mementoes of the sacred places they have visited. In the Musée de Cluny one finds metal emblems of all the great pilgrimages of the Middle Ages which have been recovered from the Seine, and the Mediaeval Room of the British Museum contains also a collection of such *signacula.*

"Mediaeval India also," the author continues, " has left us by hundreds the witnesses of that custom. They are mostly simple lumps of clay moulded and stamped by means of a signet, which served at the same time as *memento* and *ex-voto* and were no doubt within reach of every purse. They occur now-a-days on all ancient Buddhist sites, even in the Peninsula of Malacca and Annam. Is it too much to assume that these 'saintes empreintes' of the Buddhists are the vestiges of a tradition which goes back to the original four great pilgrimages? It would merely mean that Buddhist art would owe its origin to

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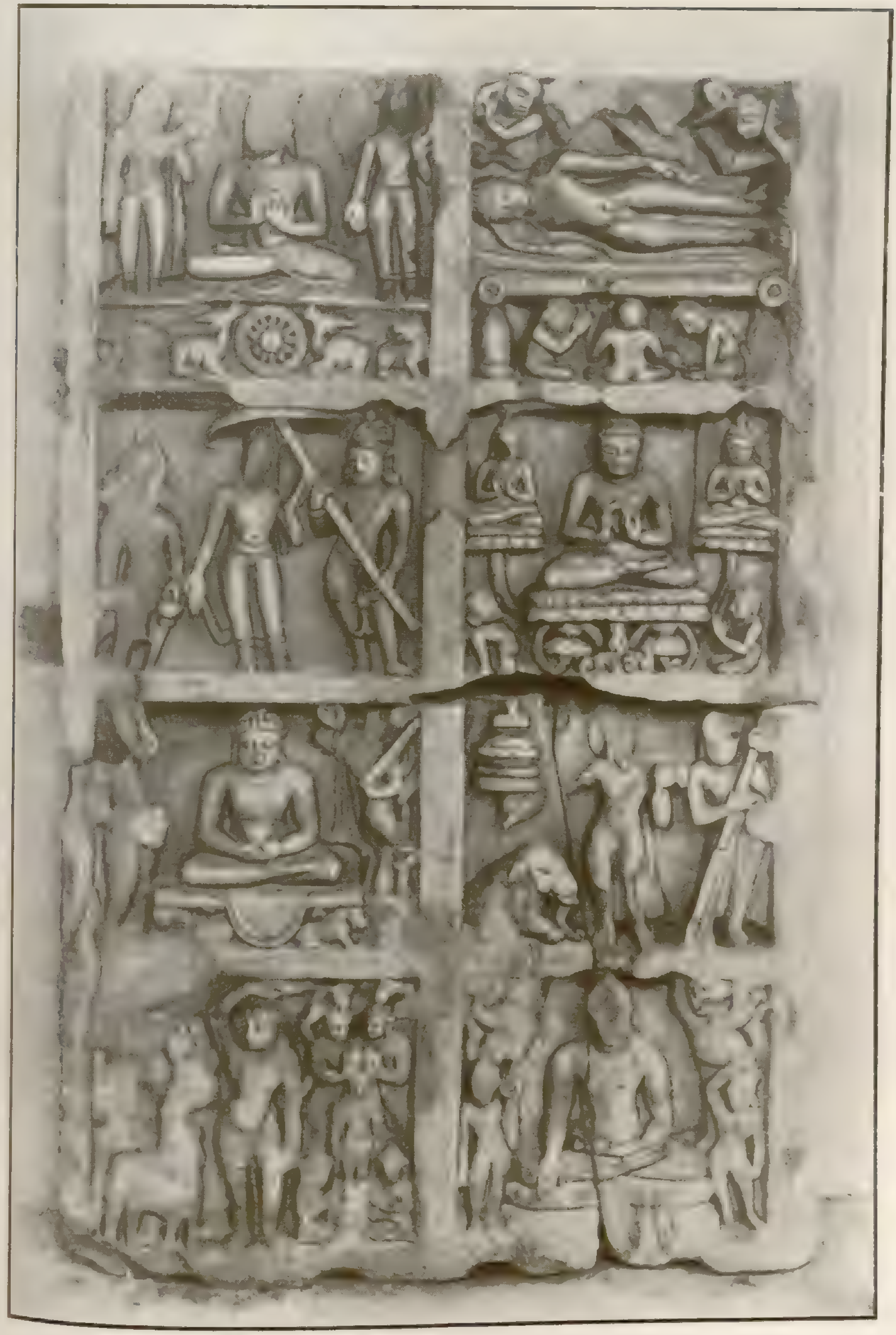
[1] *Journal Asiatique*, 1911, pp. 55 sqq.

the satisfaction of a need, felt everywhere and always, which might be called one of the religious instincts of humanity."

The author further questions which would be the pious subjects chosen to symbolize the four great places of Buddhist pilgrimage. The answer is not difficult to give. "At Kuçinagara pilgrims visited, first of all, the spot of the Master's final extinction marked most appropriately at an early date by a *stūpa*. Likewise, as the essential miracle of Benares had taken place in the Mṛigadāva (Deer park), it was natural that the consecrated term of "setting the wheel-of-the-Law in motion" was rendered visible by means of a wheel, usually flanked by two antelopes. At Bodh Gayā, on the other hand, one beheld the ever-green fig-tree at the foot of which the Blessed One had sat in order to attain omniscience. Last of all, what was worshipped at Kapilavastu ? Here the answer is more uncertain. No doubt, the great attraction of the place lay in the memory of the Nativity of Buddha, but, not to speak of the paternal home, the most ardent zeal could vacillate between the spot of his material birth and that of his spiritual regeneration, in other words, between the Lumbinī Garden where he was born from the right side of his mother, and the not less famous gate through which he escaped the wretched pleasures of the world. Whatever may have been the uncertainty of choice here, no hesitation, at least, was allowed with regard to the other three sites. A tree, a wheel and a *stūpa*—these were sufficient to recall to mind, at a distance, the scenes of those sacred spots, yea, to evoke through a constant association of the ideas and images, the miracles which they had witnessed. However summarily these objects may have been indicated, the imagination supplements the poverty of the artistic means, where human weakness cannot dispense with the visible sign."

I must resist the temptation to quote further from M. Foucher's most suggestive study. It explains much that seems strange in the history of Buddhist art. For my present purpose it is of interest to note that the piece of sculpture discussed in my paper is an outcome of that same custom in which, in its original form, M. Foucher has recognized the source and fountainhead of Buddhist art. However great the difference may be between those primitive clay tablets marked with the figure of a tree, a wheel or a *stūpa*, and the refined and elaborate little sculpture described here, they owe their existence to the same pious fervour which made the faithful Buddhist brave the perils of a long and dangerous journey to view the hallowed spots where the Buddha had preached and worked.

A BUDDHIST SCULPTURE FROM KANDY.



A BUDDHIST SCULPTURE FROM SĀRNĀTH.

A BUDDHIST SCULPTURE FROM SĀRNĀTH.

A BUDDHIST SCULPTURE FROM AMARĀVATĪ.

A BUDDHIST SCULPTURE FROM PAGĀN.

21. On North Indian Charms for Securing Immunity from the Virus of Scorpion-Stings.

By SARAT CHANDRA MITRA, M.A., B.L., *Pleader, Judge's Court, Chapra.*

In my previous paper on the "North Indian Folk-Medicine for the Cure of Hydrophobia and Scorpion-Stings," I have described the methods current in Northern India for the treatment of the aforesaid ailments. In this paper, I intend to discuss some charms which are popularly supposed to render the user thereof either invulnerable to the stings of scorpions or immune from their virus. This alleged wonderful endowment is supposed to be conferred by (1) the repetition of certain passages of the Koran; (2) by undergoing the ceremony of fire-walking which is known in Northern India as the *Dam Madār* (दममदार or دم مدار); and (3) by carrying about one's person the medicinal plant known as the *Chirchirā.*

Of the charm No. 1 *supra*, we have a remarkable instance recorded by the eminent French physician François Bernier who travelled through the Moghal Empire during the years A.D. 1656-1668. The possession of this alleged wonderful power of making one's self invulnerable to scorpion-stings was claimed by a Moghal who gave ocular demonstrations of it before the Frenchman. The latter has recorded the following impressions of the aforementioned exhibition:—

"It was here, I recollect, that in stirring some stones, we found a large black scorpion, which a young *Mogol* of my acquaintance took up and squeezed in his hand, then in the hand of my servant, and lastly in mine, without any of us being stung. This young cavalier pretended that he had charmed the scorpion, as he had charmed many others, with a passage from the *Koran*; 'but I will not,' added he, 'teach you that passage, because the occult power would then depart from me and rest with you, in the same manner as it left my teacher the moment he imparted the secret.'"[1]

The second charm is connected with the ceremony of performing the *Dhummul* or *Dam Madār*, which is very popular with the peasantry and the low class people of Northern India. The person, who is desirous of acquiring the supposed

[1] *Travels in the Mogul Empire A.D.* 1656–1668. By François Bernier, M.D., of the Faculty of Montpellier. Edited by Archibald Constable, M.A.S.B. Westminster: Archibald Constable & Co., 1891. Page 408.

immunity from the virus of snakes and scorpions, has to jump into a fire and tread it out, at the same time exclaiming: "*Dam Madār! Dam Madār!*" ("By the breath of *Madār!* By the breath of *Madār!*") This is done under the belief that not a hair of the performer will get singed and that he will become immune from the venom of snakes and scorpions. This ceremony is held, every year, in honour of *Budee-ud-Din Shah Madar* who, according to the *Mirat-i-Madareea*, was a converted Jew. It is said that he was born at Aleppo in A.D. 1050 and came to India in the reign of Sultan Ibrahim Sharqi. He took up his abode between Cawnpur and Farakkabad and expelled therefrom an evil spirit named *Mukun Deo* which haunted that place and, to commemorate this event, gave the name of *Mukunpur* to his place of residence. He was buried there in A.D. 1433 at the ripe old age of 400 years! A handsome mausoleum was erected by Sultan Ibrahim over his grave. It is believed that he is still alive; and hence he is known by the name of *Zinda Shah Madar.* The Prophet Mahammad endowed him with the power of *hubs-i-dam*, or retention of breath, to which was ascribed his longevity, as the number of his respirations could be diminished at his sweet will and pleasure. The ceremony of *Dhummul Khelnā* takes place on the 17th of the month of *Jamadi-ul-Awwal.*[1]

There grows all over India a small shrub about 3 to 4 feet high. Its name in Sanskrit is अपमार्गः (*Apamārga*), in Bengali *Apāng*, and in Hindi चिचिरा or چرچرہ (*Chirchirā*). Its botanical appellation is *Achyranthes aspera* or the Rough Chaff Tree. There are two varieties of this plant, one being white and the other red. It is firmly believed that, if the white variety of this plant is carried about the person, the wearer becomes invulnerable particularly to the stings of scorpions and that, if it is applied to the part stung, it alleviates the pain quickly and surely as did the basil mentioned by the classical writers. "But whether those so healed feel themselves, like Olearius, particularly affected ever after, whenever the Sun is in Scorpio, is not said."[2] Competent authorities on Indian drugs have said that "the seeds and leaves (of this shrub) are considered emetic, and are useful in hydrophobia and snake-bites."[3]

That certain persons enjoy a wonderful immunity from the virus of scorpion-stings is admitted by eminent scientists. This fact has been strikingly verified by the well-known case of the *Yogi* from the Mirzapur District, U.P., who was brought to

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1 *Supplement to the Glossary of Indian Terms.* By H. M. Elliot, Esq., Agra: 1845. Pp. 253-54.

2 *Op. cit.*, p. 140.

3 *A Handbook of Indian Products.* By T. N. Mukharji. Calcutta: 1883. P. 69.

the Calcutta Zoological Gardens and who gave demonstrations of his remarkable endowment before Dr. D. D. Cunningham, F.R.S. These scientific men account for the possession of this almost miraculous power by saying that it is either the result of innate idiosyncratic peculiarity in the former's constitution, or, more likely, the outcome of artificial immunity acquired by means of repeated inoculations with the venom and of the corresponding development of its antitoxin.

About the almost marvellous power exhibited by the *Yogi*, Dr. D. D. Cunningham says :—

"A *Yogi* in the Mirzapur district was famed for his insusceptibility to the stings of scorpions. On the offer of a very handsome remuneration, he came down to Calcutta and was quartered in the Zoological Gardens. He was asked to give a private exhibition with a number of large, freshly caught black scorpions which were imported from Midnapur where they abound. He agreed to the proposal. The result of this was to show that he really was from one or other cause practically insusceptible to the action of the virus; for he allowed several large, lively scorpions to fix their stings so firmly into his fingers, that, when he raised and shook his hand about, they remained anchored and dangling by their tails, whilst neither then nor afterwards did he show the slightest signs of pain or inconvenience. This, to any one who knows how acute the pain caused by the stings of scorpions normally is, was conclusive evidence of some peculiar endowment; the evidence of at least relative immunity was complete; but the question of its origin remained undetermined. The uneducated natives to whom the exhibition was ordinarily made naturally regarded the outcome as the result of *yog*, or supernatural power, acquired as the result of penitential religious rites, but to an unprejudiced observer two more materialistic explanations presented themselves. The immunity may possibly have been the result of innate idiosyncratic peculiarity in the constitution of the performer, or, more probably, represented the outcome of artificial exemption acquired at the expense of repeated inoculations with the virus and corresponding development of its antitoxin. Modern experiments have shown how easy it is to establish a relative and cumulative immunity to the action of snake venoms by means of their repeated inoculation, beginning with sublethal doses and gradually working upwards from them; and a more homely example of like nature must be familiar to all who have ever lived for long in a region infested by mosquitoes. All who have done so must remember the amount of discomfort attending introduction to the environment, and how, in the course of years, and after the occurrence of innumerable inoculations, mosquitoes would have been regarded with contemptuous indifference had it not been for their persistently

irritating humming notes. There can, I think, be little doubt that our friend the *Yogi* had undergone a very considerable amount of suffering in order to acquire his reputedly miraculous endowment."[1]

We may account for the insusceptibility to scorpion-stings, displayed by the Moghal mentioned by M. François Bernier, by Dr. D. D. Cunningham's theory of artificial immunity acquired by repeated inoculations. That is to say, we may take it that the young Moghal had rendered himself immune from the virus of scorpions by repeatedly allowing himself to be stung by them and thereby inoculating himself with the venom thereof. But I am unable to explain why M. François Bernier himself and his servant, though they firmly held the scorpions in their hands, were not stung by the latter.

Closely allied to the foregoing charms is that curious one whereby the power to cure scorpion-stings is acquired by the practitioner, after rubbing with his hands, while he is in a blindfolded state, the blossoms of a mango tree. This charm is effected in the following way :—When the mango trees have burst into blossoms, the person, who is desirous of acquiring the power, must shut his eyes, be led blindfolded by somebody else to one of the same and take hold of some of the blossoms. He should then rub the blossoms into his hands; and thereafter he blossoms forth into a full-blown adept in the art of healing scorpion-stings. In order to effect the cure, the practitioner, who has acquired the power in the foregoing way, has only to wave his hand over the part of the patient's body which has been stung by a scorpion. This alleged healing power is said to last for one year only and must be renovated when the flowering season of the mango trees comes back the next year.[2]

The two essential components of this charm are :—(*a*) The touching of the blossoming mango tree; and (*b*) the act of waving the hands over the affected part.

(*a*). Now it is well-known to students of folklore that the mango tree is a scarer of evil spirits and influences. It is used for making the aspersion at rural ceremonies. Wreaths made of its leaves are hung up on the occasion of *pujas* and other festive celebrations on the house-door. In Rohilkhand, on the occasion of the *Akhtij* festival, the cultivator goes at daybreak to one of his fields, taking with him a brass *lota* full of water, a branch of the mango tree and a spade. The attendant priest then makes certain calculations and ascertains the spot where the first digging should be done. This having been

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[1] *Plagues and Pleasures of Life in Bengal.* By Lieut.-Colonel D. D. Cunningham, C.I.E., F.R.S. London : J. Murray. 1907. Pp. 196-198.

[2] *An Introduction to the Popular Religion and Folklore of Northern India.* By W. Crooke, B.A. Allahabad : 1894. Pp. 256-257.

made, the peasant digs up *five* clods of earth with his spade and then sprinkles the water from the *lota five* times with the branch of the mango tree into the trench.[1] At the Pola festival held in Berar, the bullocks of the whole village are led in procession under a sacred rope made of twisted grass and covered over with mango-leaves.[2] Whenever cattle murrain breaks out in Northern India, it is a common practice to hang up a rope of straw into which mango-leaves have been strung, over the roadway by which the cattle enter or leave the village on their way to the grazing-ground.[3] [Note that five is a lucky number and that the *Dub*, the *Kusa* and various other grasses are spirit-scarers.]

We should now see how the belief that the mango tree is a spirit-scarer has originated. This can be ascertained only if we are able to find whether any Indian people, still existing in the primitive stage of "manners none, customs beastly," entertain the idea that the mango tree is the abode of some spiritual being, who exercises a beneficent influence over them and expels all evil influences and malignant spirits. Fortunately, we find that this idea is prevalent among the Mūndās of Chhota Nagpur, among whom the mango tree is still cited as a witness on the occasion of marriage-ceremonies and the bridegroom and bride are sprinkled with water by means of mango-twigs in order to scare away the malignant spirits and the evil influences exercised by them.

When the Mūndā marriage-procession leaves the bridegroom's village, it stops at the first mango (*uli*) tree on the way. Round the trunk of this tree, the bridegroom puts a mark of rice-flour dissolved in water, and ties up a thread. The bridegroom's mother then sits down thereunder with the bridegroom on her knees. She then asks certain questions of her son, which being answered, the latter puts into his own mouth a mango-stalk and molasses. After chewing the mango-stalks a little, he gives the chewings to his mother who gulps down the whole thing and blesses her boy.[4] Similarly, on the occasion of the performance of the bride's '*Uli-sākhi*' ceremony, the bride with a number of her female relatives next proceeds on the palanquin, vacated by the bridegroom, to a neighbouring mango tree. Arriving there, the bride puts a mark on the tree with moistened rice-flour and ties up a thread around it. The tree is thus made a witness (*sākhi*) to the marriage.[5]

Then again, when the Mūndā bridegroom arrives at the

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[1] *Op. cit.*, pp. 369-70. [2] *Op. cit.*, p. 377. [3] *Op. cit.*, p. 378.

[4] *The Mūndās and Their Country.* By S. C. Roy, M.A., B.L. With an Introduction by E. A. Gait, Esq., I.C.S., C.I.E. Calcutta: The City Book Society. 1912. P. 445.

[5] *Op. cit.*, p. 447.

courtyard of the bride's house, a number of female relatives come out to meet him, each carrying a brass *lotā* filled with water and a pestle. Each of these women first sprinkles water on the bridegroom with a mango-twig, and then brandishes the pestle, jestingly exclaiming: "If you prove covetous, if you prove a thief, you will be thus beaten with a pestle."[1] This custom of sprinkling the bridegroom with water by means of mango-twigs is alluded to in a Mūndā folk-song wherein a Mūndā youth, bidding defiance to all social restrictions, says:—

> "For a bride I shall seek where affection will lead,
> My wishes alone the sole guide that I know.
> *No sprinkling of water with mango-twigs I'll rede,*
> Nor mark of vermilion over my brow."[2]

This practice of performing the lustration with mango-twigs is also resorted to on other ceremonial occasions, as will appear from the following:—In the Mūndā legend of Lutkum Haram and Lutkum Buria, it is stated that the Asūrs led the Tōrō Kōrā towards their furnaces to offer him up as a sacrifice to appease Sing Bōngā. The Tōrō Kōrā had already given directions as to the proper mode of the sacrifice. "Two virgins," he had said, "who will have fasted for three days and nights shall work the furnaces with bellows newly made of white goat-skin and furnished with new bellow-handles and a new bellow-nozzle. By day and by night must the bellows be worked without any respite. And at the end of three days, *let them sprinkle water on the furnaces with mango-twigs*, and then put out the fire. And the water shall be carried in new earthen pitchers on head-cushions made of cotton-thread."[3]

(*b*). The waving of the hands over the affected part is closely allied to the Wave-Ceremony which is based on the idea that spirits flutter in the air round a person exposed to their influences. It is for this reason that, on the occasion of the performances of marriage-ceremonies in Northern India, lights, a brass tray, grain, and household implements, as for instance the rice-pounder, are waved round the heads of the bride and bridegroom in order to scare away the evil spirits and the baleful influences exercised by them. I think that the medicine-man, by waving his hands over that part of the patient's body which has been stung by the scorpion, expels the poisonous effects of its sting.[4]

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[1] *Op. cit.*, p. 446. [2] *Op. cit.*, p. 517.
[3] *Op. cit.*, p. xxxiii (Appendix II).
[4] For further illustrations of the Wave-Ceremony, see Crooke's *Introduction to the Popular Religion and Folklore of Northern India* (Allahabad Edition of 1894). P. 199.

22. Contributions to the History of Smṛti in Bengal and Mithilā.

Part I.

By Rai Monmohan Chakravarti Bahadur, M.A., B.L., F.A.S.B., M.R.A.S.

In the mediæval period Smṛti formed one main stream down which flowed Sanskrit thought in Bengal and Mithilā. This Smṛti, which had its roots deep down into the Vedic Gṛhya and Dharmma Sūtras and its trunks in the saṁhitās, finally developed into innumerable rules that mapped out and regulated the entire Hindu life. Its original three-fold branchings into Ācāra, Vyavahāra and Prāyaścitta became subdivided into numerous sub-branches such as Āhnika (daily rites), Saṁskāra (periodical rites), Aśauca or Śuddhi (purification), Prāyaścitta (expiations), Śrāddha (funerals), Kṛtya (festivals), Pūjā (worship), Pratiṣṭhā (consecration), Dāna (gifts), Kāla (appropriate times), Vyavahāra (legal procedure and evidence), Vivāda (civil and criminal law) of which one part the Dāya (inheritance) was often specially treated, Rājadharmma (kingly duties), and so on.

The immensity and complexity of the rules laid down, and their constant application to the innumerable circumstances of human life, naturally engaged the attention of numerous minds, some of them the keenest in intellect. The names of good many of them with their writings have been now lost, or survive only in quotations. Nevertheless in the course of my studies I have come across in Bengal alone more than ninety Smṛti-writers and more than two hundred and sixty works, without taking into consideration those dealing with the connected subjects of astrology and worship. A few of them have been printed, specially some of those on Vyavahāra and Vivāda; but the vast bulk lie hidden in manuscripts.

To the historical student these works are of great importance. In spite of much rubbish and obsolete matters they furnish him with a mass of information bearing on the social and religious life of the people in Bengal at that time. The works are also valuable, because a large part of these rites and customs still survive, and where non-existent furnish clues to the changed rites and customs. Furthermore, the sections on Vyavahāra and Vivāda form the basis of the present judge-made rulings on Hindu personal law in Bengal, specially on inheritance, succession and partition.

The subject had not been treated before broadly and scientifically; and hence the student finds considerable difficulty in treating such a large mass of materials. The object of the present article is therefore mainly two-fold, firstly, to ascertain the works of the more important writers, and secondly, to ascertain their respective times, so that the gradual development in ideas can be traced out. In a previous article I have already dealt with one of the oldest Bengali writers, Bhavadeva Bhaṭṭa. In the present article I deal with five other important names of the Bengal School, viz.:—

1. Jīmūta-vāhana.
2. Bhaṭṭa Halāyudha.
3. Śūlapāṇi Upādhyāya.
4. Śrīnātha Ācāryacuṛāmaṇi.
5. Raghunandana Bhaṭṭācārya.

As a sort of supplement I have added a few notes on Bhaṭṭa Lakṣmīdhara, whose work exercised considerable influence on the subsequent Smṛti literature not only of Bengal but of other provinces. It is my object also to deal in another paper with Smṛti in Mithilā. For apart from their own intrinsic merit, the Smṛti writers of that land considerably influenced and stimulated the later smṛtic studies in Bengal, and therefore no account of Bengali intellectual life in the mediæval period can be complete without some notice of these Mithilā paṇḍits.

For facility of readers' information the result of my discussion as to timings is put down here in a tabulated form:—

Authors.	Their approximate times.
A. *Pre-Sena Period.*	
1. Bhavadeva Bhaṭṭa (Rāṛhīya, Sāvarṇa gotra) ..	Second half of the eleventh century.
2. Jīmūta-vāhana (Rāṛhīya, Pārībhadrīya)	First quarter of the twelfth century.
B. *The Sena Rule.*	
3. Aniruddha Bhaṭṭa (Vārendra, Campāhaṭṭīya) ..	Third quarter of the twelfth century.
4. Ballālasenadeva (disciple of 3)	Do.
5. Halāyudha Bhaṭṭa (Rāṛhīya, Vātsagotra)	Fourth quarter of the twelfth.
C. *The Hindu Revival.*	
6. Śūlapāṇi Upādhyāya (Rāṛhīya, Sāhuṛīyān) ..	First quarter of the fifteenth.
7. Kullūka Bhaṭṭa (Vārendra, Nandanavāsi)	Do.

8. Śrīkara Ācārya (probably Rāṛhīya)	Fourth quarter of the fifteenth.
9. Śrīnātha Ācāryacuṛāmaṇi (son of 8)	Last decade of the fifteenth and first quarter of the sixteenth.
10. Haridāsa Tarkācārya ..	Beginning of the sixteenth.
11. Raghunandana Bhaṭṭācārya (Rāṛhīya, Vandyaghaṭīya).	First and second quarters of the sixteenth.
12. Acyuta Cakravarttī (son of 10)	Second quarter of the sixteenth.
13. Rāmabhadra Nyāyālaṅkāra Bhaṭṭācārya (son of 9) ..	Second and third quarters of the sixteenth.
14. Govindānanda Kavikaṅkaṇācārya (Vaidik) ..	Do.

I. Jīmūta-vāhana.

The *Dāya-bhāga* of Jīmūtavāhana forms the basis of the modern law of inheritance and partition in Bengal. In fact he may be considered a pillar of the Bengal school of Hindu law. Unfortunately very little authentic is known of him and of his works. Even his time is as yet unsettled. I have therefore gathered here all the information available to give some idea of the man and of his productions.

A. HIS WORKS.

A. His Dharma-ratna.

His existing works are according to the colophons part of a general treatise on Smṛti named *Dharma-ratna* (the ornament of the Dharmaśāstra). Only three of his works have been as yet brought to light, viz. :—

i. *Kāla-viveka* (a discussion of the appropriate times);
ii. *Vyavahāra-mātṛkā* (the alphabets of legal procedure and evidence);
iii. *Dāya-bhāga* (division of property on inheritance).

All the three works have been printed.[1]

[1] The *Kāla-viveka* has been printed in the Bibliotheca Indica (1905), edited by Paṇḍit Madhusūdana Smṛtiratna, and completed by Paṇḍit Pramathanātha Tarkabhusaṇa; the *Vyavāhāra-mātṛkā* has been published in the *Memoirs* of the Asiatic Society, Bengal, Vol. III, No. 5 (1912), edited by Sir Āsutosh Mukerjea; the *Dāya-bhāga* has been often printed, but I am using here the Bengali edition edited by Paṇḍit Bharatcandra Śiromaṇi, 2 vols. (1863-66).

i. The Kāla-viveka.

Its Name.

In the preface to the Bibliotheca edition (p. vii), the editor has remarked :—" In all the MSS. used for collation, the work though treating of Kāla, is nowhere called Kāla-viveka." This remark is evidently due to oversight. Not only in the final colophon (p. 544) is the work named *Kāla-viveka*, but in the body too the name appears in the final verse at the end of the section on taila-nirūpaṇam.[1]

Its Object.

The object of the work is given in the introductory verse 2:—" (The subject of) time has been ignored by some (writers), and treated briefly by others. Hence for the easy understanding of the ignorant this has been made by me."[2] It would seem therefore that no previous treatise specially dealing with Kāla alone was known to the author.

Its Contents.

The work begins with a discussion of the appropriate month and season for the performance of religious duties and works, particularly whether the prescribed month should be lunar or solar. It goes on next to discuss intercalary months, the four-monthly period of Viṣṇu's sleep, etc., discussing the times of various religious festivals according to tithis, and ending with the Durgā festival and the eclipses. Like the entire work some of the sections also end in the word *viveka*, such as, the Amāvasyā-viveka (pp. 354–365), the Apar-āhṇ-ādī-viveka (p. 375), the Janma-mās-ādi-viveka (p. 375). The Saṅkrānti-viveka is so called in the body (p. 400), though the heading has been printed otherwise (saṁkrānti-nirūpaṇaṁ).

Its References.

The work refers occasionally to śruti, Pāṇini and *Vārtika*-kāra, but abounds with references to and extracts from the chief Purāṇas and Dharma-śāstra sages. As it has to deal with time, it quotes from astronomical treatises such as the *Sūrya-siddhānta* and the *Brahma-siddhānta* (whose author Brahmagupta is also named) and also from astrological works such as the vague Jyotiḥ-śāstra, the *Jyotiḥ-Parāśara* and the treatises of Varāha-Mihira (probably all three, the *Bṛhaj-jātaka*, the *Laghu-jātaka*, and the *Bṛhat-saṁhitā*).

Among later works may be named, first the general compilations from the Dharma-śāstra Ṛṣis, viz. the *ṣaṭ-triṁśan-mata* (the opinion of the thirty-six), and the *Smṛti-samuccaya*

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[1] P. 380, करतलगतामलकमिव कालं बालोऽपि वीक्ष्यते येन।
जीमूतवाहनकृतः कालविवेकः परं जयति ॥ [२॥]

[2] P. 2, कालः कैश्चिद्बुद्धः कैश्चित् संक्षिप्तश्च वचननिबद्धः ।
इति मन्दमतीनामपि सुबोधकरणो मया क्रियते ॥ [२॥]

(20 times). Bhojadeva is named at least three times; while several astrological verses for which no names appear, are ascribed by Govindānanda Kavikaṅkaṇācārya to the *Rāja-mārttaṇḍa* of Bhoja. One allusion is found to each of the following: Yogīśvara, an author named also in the *Mitākṣarā*; Viśvarūpa, a famous commentator on the *Yājñavalkya-saṁhitā*, whose work is now being printed; Govindarāja, a well-known commentator on the *Manu-saṁhita*, and Bhavadhana whose work is now lost.

Besides these, several of the writers who had treated the subject of Kāla in their works find a place in this treatise. Some have been vaguely spoken of as *kecit*. But in one place Jimūtavāhana has clubbed together seven names:—"The ascertainment of (proper) time made by Jitendriya, Śaṅkha-dhara, Andhūka, Saṁbhrama, Harivaṁśa, Dhavala, and Yog-lauka, is now shown to be unsubstantial."[1] To this list should be added Dikṣita. They are named more than once as follows:—

Andhūka (10).
Jitendriya (9).
Dikṣita (18).
Dhavala (7).
Yoglauka or Yogloka, (36), with two versions, *Bṛhad°* and *Svalpa°*.
Śaṅkhadhara (7).
Saṁbhrama (6).
Harivaṁśa (1).

These writers have been criticized, and criticized rather freely. Probably they were not deemed authorities sufficiently old to command respect. Among them Yogloka was criticized most often, and rather unmercifully, his views coming in for such remarks as *tan-na*, *heyam-eva*, *tad-asaṁgataṁ*, *tad-asamban-dhaṁ*, *tad-anākaraṁ*, *tad-ayuktaṁ*.

Its mention in later literature.

The Kāla-viveka is named and quoted in the *Durg-otsava-viveka* of Śūlapāṇi, in the *Śrāddha-cintāmaṇi* of Vācaspati Miśra, in the *Śrāddhakaumudī* and *Varṣakṛiyā-kaumudī* of Govindānanda and in the *Tattvas*, Malimluca, Śuddhi, Tithi, Ekādaśī, Chāndoga-vṛṣotsarga, and Āhnika of Raghu-nandana.

ii. *The Vyavahāra-mātṛkā.*

Its Name.

This work is named in three forms, that is, (1) as *Vyava-hāra-mātṛkā*, in the first introductory verse, and in the final colophon of the printed edition; (2) as *Nyāya-mātṛkā* in the last but one verse at the end; and (3) as *Nyāya-ratna-mālikā* in the final colophon

[1] P. 380, जितेन्द्रिय शङ्खधरान्धूक-सम्भ्रम-हरिवंश-धवल-योग्लोकैः ।
कृतमपि कालनिरूपणमधुना निःसारतां याति ॥ [२॥]

of a manuscript in the Deccan College, Poona. I have selected the name first given, because the work is named so by both Vācaspati Miśra (in the *kṛtya-cintāmaṇi*), and by Raghunandana (in the Dāya, Vyavahāra, and Divya *Tattvas*); and because it connotes a definite meaning (the elements of Vyavahāra), a meaning that is given to it expressly also in the *Mitākṣarā* and by Viśvarūpa.[1]

The printed text appears defective at places, and has been therefore checked and revised for the purposes of this article by collation with the Deccan College MS. No. 278 of 1887-91.[2]

Its Contents.

The work describes the procedure to be followed in court and the nature of evidence to be adduced there. Beginning with an introduction, the Vyavahāra-mukhaṁ, it divides the main business into four parts, viz :—

(1) The bhāṣā-pāda, dealing with the filing of a plaint or of a complaint by the first party (the arthī); (2) the uttara-pāda, treating of the reply given by the opposite party (the praty-arthī); (3) the kriyā-pāda, describing the procedure in court with the nature and value of evidence adduced on either side; (4) and lastly the nirṇaya-pāda, or the decision and order of the Court. In the third part under the subhead pramāṇa or proof the author discusses the various kinds of evidence, to wit, witness or oral evidence (sākṣi), document or written evidence (lekhya, likhitaṁ), and possession (bhukti), besides inference (anumāna) including the personal observations of the

[1] See the *Mitākṣarā*, under the *Yājnavalkya-saṁhitā*, *II.* 8:— इति व्यवहारमातृका॥ एवं सर्व्वव्यवहारोपयोगिनीं व्यवहारमातृका व्यवहारमातृकाभिधायाधुना क्वचित् व्यवहारविशेषे कश्चिद्विशेषं दर्शयितुमाह॥ ८॥: and for Viśvarūpa, see pp. 225-268 of the Bombay printed edition of Mr. S. S. Setluv (1912).

[2] This MS. may be briefly described as follows:—Country-made whitish paper, 9¾″ × 4¾″. Folios 55, the last two torn a little on the right-hand side causing a loss of several words. Lines 10 to 11 per page. Letters Devanāgri, small but legible, copied probably by a Bengali, as figures in Bengali characters appear in the right-hand lower corners of some pages. The MS. was copied in शकाब्दा १६६३॥ ० ॥ ...... श्रावणशुक्लपक्षीय पञ्चम्यां तिथौ बुधवासरे सौरभाद्रस्य तृतीयदिवसे लिखित(त)मिदं। श्रीरामजीवन शर्म्मणा॥ ... संवत् १७९८॥ Śaka 1663, Saṁvat 1798 or 1741 A.D.

The MS. supplies numerous variant readings, and makes several additions to the printed text. For example, it adds six lines after the verse सन्यायतो (p. 283, l. 5), about a line after धर्म्माधर्म्मोपच (p. 291, l. 27), 4½ lines after धर्म्माधर्म्मोपच (p. 292, l. 1), 1½ lines after चरतीति (p. 294, l. 10), 2 lines after कात्यायन (p. 297, l 18), 1½ lines after सूनेभुक्त (p. 346, l. 35), and so on.

judge. Trials by ordeal (divyāni) have been excluded by the author.

Like the *Kāla-viveka*, this work is full of quotations, some six hundred in number. They are mostly from Smṛti-kāra Ṛṣis, twenty in number. Among them the following are quoted largely, viz., Kātyāyana (137 times), Bṛhaspati (127) and Nārada (107), all late authorities. Manu (40), Vyāsa (36) and Yājnavalkya (34) follow *longo intervallo.*[1] A few verses have no names, probably borrowed in this form from some previous compilations.

Its References.

Among later writers, Viśvarūpa deserves to be specially mentioned, because one main object of the work was to clear him of various faults imputed by other writers. Towards the end of the Kriyā-pāda, the author says:—" By me has been put forward this explanation (Vyākhyā) of the eastern treatises, having discussed (the subject) after clearing the imputations on Viśvarūpa and others."[2] Viśvarūpa named ten times is sometimes criticized, but is more often defended.

The other later writers named are—Jitendriya (2), Dikṣita (1), Bāla (1), Bhojadeva (2), *Mañjarī*-kāra (1), Yogloka (Yoggoka in the Decc. Coll. MS.) (9), Śrīkara (5), twice entitled Miśra. *Mañjarī*-kāra is to be identified probably with Govindarāja, a commentator on the *Manu-saṁhitā*, who wrote the *Smṛti-mañjarī*.

Occasionally Śrīkara, but more often Yogloka, has been criticized. Yogloka has been dubbed five times *Tārkikammanya* or pseudo-logician, and his views sneered at with such remarks as *tad-asaṅgataṁ*, *heyaṁ*, *tan-n-ādaraṇiyaṁ* and so on, as in the *Kāla-viveka*.

Between the *Vyavahāra-mātṛkā* and the *Mitākṣarā* a considerable similarity is found to exist about the quotations from Smṛti-kāra Ṛṣis. On a rough comparison I find common in both at least 21 verses of Nārada, 20 verses of Kātyāyana, 7 verses of Vyāsa, 4 verses of Manu and of Bṛhaspati, and one verse of Hārīta. A still closer agreement exists about these quotations, between the *Vyavahāra-mātṛkā* and the *Kṛtya-kalpataru* of Lakṣmīdhara, *Vyavahāra-khaṇḍa*.[3] On a hurried comparison, I find common in both, at least 30 verses of Kātyāyana, 18 verses of Bṛhaspati, 11 verses of Nārada, 5 verses of

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[1] The figures in bracket, taken from Sir Āshutosh Mukherjea's preface (p. II), will need revision. A couple of verses at least will have to be added to Nārada, one to Gotama and nine to Kātyāyana, according to the readings of the Decc. Coll. MS.

[2] Printed edition, p. 352: Decc. Coll. MS., folio 54.

मया प्राचां निबन्धानां इयं व्याख्या पुरस्कृता ।
दूषणं विश्वरूपादेर्निराकृत्य प्रपञ्चितः ॥ [२ ॥]

[3] See the Ind. Govt. MS. No. 1437.

Manu, $2\frac{1}{2}$ verses of Yājñavalkya, and one extract each of Gautama, Vyāsa, Viṣṇu and Uśanasa.

The similarity between Jīmūta-vāhana's work and Vijñāneśvara's is explained by their large reliance on one authority, Viśvarūpa. We have seen that one main object of writing the *Vyavahāra-mātṛkā* was to clear Viśvarūpa's work from certain faults charged against him by some writers. The *Mitākṣarā* itself seems to have been an abridgment of Viśvarūpa's commentary on the *Yājñavalkya-saṁhitā*, and in the introductory verse No. 2 it says :—"The Dharma-śāstra uttered by the sage Yājñavalkya, and expounded profusely in the deep words of Viśvarūpa, is now being discussed in an easy and concise style for the understanding of children (i.e., person of small intelligence)." This common reference to Viśvarūpa largely explains the similarity in the quotations, both borrowing freely from the same source.[1]

The similarity in the quotations found between the *Vyavahāra-mātṛkā* and the *Vyavahāra-kalpa-taru* extends to the Dāya-bhāga section also, but with some marked differences in their interpretation. On the whole I am not disposed to see any borrowing of one from the other, and think it more probable that both had been borrowing from the same source, i.e., some of the previous Smṛti compilations. This question of priority will be discussed *infra* under the subheading of Jīmūtavāhana's time.

It is curious to find that "law's delays" were well known at that time. The kriyā-pāda section begins with the following quotation from Kātyāyana :—

"In the examination of witnesses no delay should be made by the king, as from delay arises serious fault. Such is the sign of dharma's prohibition".[2]

iii. The Dāya-bhāga.

Introductory.

By this work Jīmūtavāhana is best known to the outside public. It was repeatedly commented upon; and the names of more than a dozen commentaries are known at present, seven of which have been printed in the Bengali edition of Paṇḍit Bharatcandra Śiromaṇi. Raghunandana himself wrote a commentary on it, and used it largely in his Dāya-tattva, besides quoting it in the Malamāsa and śuddhi tattvas. It has been often printed. It has been translated into Bengali, and into English

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[1] For the commentary of Viśvarūpa on the Vyavahāra section of the *Yājñavalkya-saṁhitā*, see the Bombay printed edition.

[2] Printed edition, p. 306, repeated later in p. 328 अतएव कात्यायनः

न कालहरणं कार्य्यं राज्ञा साक्षिप्रभाषणे ।
महान् दोषो भवेत् कालाद्धर्मव्याहतिलक्षणः ॥

by Colebrooke and Prasannakumār Tagore. Its findings have been largely adopted and incorporated into the judge-made positive law of the Hindus in Bengal. The importance of this treatise for Bengal lawyers can therefore be hardly exaggerated.

Its Contents.

Both at the outset and towards the end (verses 1 and 2) the author declared that he had composed this work to settle the many disputes among the learned men and between the previous treatises regarding the division of property on inheritance. The work, not originally sub-divided, is at present sub-divided into fifteen adhyāyas, some of which, for example the last one, has been separated rather arbitrarily. Beginning with a definition of dāya, and after very briefly enunciating some general principles thereof, the author proceeds to discuss the times of division, first of father's property (Ch. I), next of grandfather's property (Ch. II), and then division by brothers after father's death (Ch. III). The fourth chapter is devoted to woman's property (strīdhanaṁ), and its division either with children living or without any children surviving. The fifth chapter gives a list of those who are not entitled to partition; and the sixth treats of property which is divisible and which is not, treating specially of self-acquired property, acquired by skill or learning. After discussing several miscellaneous questions in the chapters VII to X, the author deals with inheritance when no son has survived with successive heirship (Ch. XI), and then with the inheritance of property when living joint (Ch. XII). The thirteenth is devoted to joint property kept concealed at the time of division, and the fourteenth to settlement of inheritance disputes by court. The fifteenth gives only the three verses concluding the work.

Its References.

Quotations from and references to authorities are not infrequent, but are in number smaller than those in his other two works. The quotations are, as a rule, from the Smṛtikāra Ṛsis; one only from śruti (iv. 2. 14), one from the *Dāna-dharma* of the *Mahābhārata* (xi. 1. 60), and one only from a Purāṇa, the *Mārkaṇḍeya*, (xi. 1) have been found. On a rough computation of the names in the first four chapters or nearly half of the work, the following sages appear most:—Manu (37), Nārada (22), Yājñavalkya (21), Kātyāyana (18), Bṛhaspati (12). One quotation is vaguely called *Prāmaṇika-vacanaṁ* or authoritative saying (iv. 1. 17).

Among the later writers are mentioned:—

Govindarāja in *Manu-ṭīkā* (1).
Bhojadeva, with his title Dhāreśvara (3).
Bālaka, shortened once to Bāla (5).
Jitendriya (5).
Viśvarūpa (6).
Śrīkara, once entitled Miśra (7).

According to Maheśvara Bhaṭṭācārya (a commentator on the *Dāya-bhāga*) Udgrāha-malla (iv. 2. 6) and Udyota (ii. 9) are names of Smṛti-writers.

Of these the views of Bālaka and Śrīkara Miśra were adversely criticized. Bālaka's remarks are sneered at as *bāla-vacanaṁ* (as worthless as a child's saying); and Śrīkara's views are rejected with such remarks as *tan-mandaṁ*, *tad-atimandaṁ*, *tad-asaṅgataṁ*. Accordingly some of the commentators (Rāmabhadra, Acyutānanda and Śrīkṛṣṇa) explain Ācārya in the first verse of Ch. XV as alluding to Śrīkara. This explanation is not satisfactory, for Śrīkara has been nowhere called Ācārya, but has been, on the other hand, given the title of Miśra.

Several quotations occur common in both the *Dāyā-bhāga* and the *Mitākṣarā*. But the resemblance is stronger between the former and the *Vyavahāra-kalpa-taru*. A rough comparison of the references in the first four chapters show that out of 26 references in the *Dāya-bhāga* Ch. I, at least 20 can be traced in the *Kalpa-taru*; in Ch. II, out of 42 at least 32; in Ch. III, 20 out of 34 and in Ch. IV, 38 out of 58, or more than five-eighths. From these resemblances it would be rash, however, to assert that one borrowed from the other; for it is equally or more probable that both had been borrowing from previous compilations. The interpretations of the quotations often differ; and to judge from the notes of other works given n the *Vivāda-ratnākara*, the interpretations of Jīmūtavāhana appear to agree now and then with those of Halāyudha.

B. JĪMŪTAVĀHANA'S FAMILY AND HOME.

His Family.

The author gives very little personal information in his works. In the final colophons he is generally called *Pāribhadrīya-Mahāmahopādhyāya*; while in the last verse of the *Dāya-bhāga* and in the last but one verse of the *Vyavahāra-mātṛkā*, he describes himself as *Pāribhadra-kul-odbhūtaḥ Śrīmān-Jīmūtavāhanaḥ*. Pāribhadra is said to be still surviving in the form *Pāri-gāiṅ*, a section of Rāṛhīya Brāhmans The word itself has been given the vernacular equivalent *pharhada* by Śrīdatta in his *Chāndogāhnika*, and the Sanskrit equivalent *nimba* by Hemādri in his *Pariśeṣa-khaṇḍa*, *Śrāddha-kalpa*.[1] The name of a tree it was probably extended to the village and thence to the *kula* or family, many of which were derived from some original village of settlement.

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1 परिभद्रः फरहद इति प्रसिद्धः ।. the Ind. Govt. MS. of छन्दोगाह्निक No. 2903, fol. 246; परिभद्र निम्बः in Hemādris' चतुर्वर्गचिन्तामणि परिशेषखण्डे श्राद्धकल्पः, Bib. Ind., vol. III, p. 565.

His Home.

The inference that Jīmūtavāhana belonged to Rāṛhā is supported by some passages in the *Kāla-viveka* where Rāṛhā is mentioned along with Ujjayinī. Speaking of the difference in time respecting the rise of the star Agastya according to difference in places, the author says:—" "It (the star) rises in the last seven days of Bhādra in lands beginning with Rāṛhā and in the last four days (thereof) in Ujjayinī." [1] This statement is repeated a little further down:—[In Ujjayinī] when the sun has not reached the Kanyā, 26 days of the Siṁha being gone, the (star) Agasya rises, after which the Arghya is to be offered. In lands beginning with Rāṛhā, however, Arghya is to be offered when 23 days of Siṁha are passed." [1] According to the author, therefore, the star rises three days earlier in Rāṛhā than in Ujjayinī. This contrast of Rāṛhā with Ujjayinī, the centre of Hindu astronomical calculations, suggests that the author was using the calculations of his home land.

C. JĪMUTAVĀHANA'S TIME.

Regarding the age of the author, a wide divergence of opinion exists. One group of writers would place Jīmūtavāhana not earlier than thirteenth century and preferably in the fifteenth century; [2] another group of writers would place Jīmūtavāhana in the twelfth century, and some towards the

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[1] The *Kāla-viveka*, p. 290, किन्तु अगस्त्योदयस्य देशभेदे नानियतकाल-त्वात्। तथाहि राढादिषु सप्तदिनावशिष्टे भाद्रे तस्योदयः। उज्जयिन्याञ्च दिनचतुष्टयावशिष्टे इत्यनन्तरमेव वाच्यम्। Again, Do., p. 291. [उज्जयिन्यां] कन्यामगते सूर्ये सिंहस्य षड्विंशतिदिनेषु गतेष्वगस्त्योदयः, तदनन्तरमर्घो देय. राढादिषु तु सिंहस्य त्रयोविंशतिदिनेषु गतेष्वुदयो भवति।

[2] See Dr. J. Jolly's Tagore Law Lectures, 1883. *Outlines of a history of the Hindu Law of Partition, Inheritance and Adoption*, p. 22. "Jīmūtavāhana cannot be referred to an earlier period than the thirteenth century because he quotes Govindarāja's commentary of the Code of Manu, which, as shown before, appears to have been written in the twelfth century." Babu Rājkumar Sarvādhikāri's Tagore Law Lectures, 1880, *Principles of the Hindu Law of Inheritance*, p. 402. "The commentators of Jīmūtavāhana are of opinion that the author of the Dāyabhāga often refers to and recites the doctrines of Chandesvara and Vāchaspati Misra .... The freedom again with which Jīmūtavāhana discusses the doctrines of the author of Vivāda-chintāmani shows that Vāchaspati Misra and Jīmūtavāhana were contemporaries and that the former composed his treatise only a few years before the founder of the Bengal school composed his immortal work." Again in p. 403, "You may view Dāyabhāga from any point you please, you cannot avoid coming to the beginning of the fifteenth century as the age of Jīmūtavāhana." Professor Eggeling follows Babu Rājkumar Sarvādhikari and would place Jīmūtavāhana in the fifteenth century or the beginning of the sixteenth century (Ind. Off. *Cat.*, p. 460).

close of the eleventh century.[1] As both the conclusions cannot be correct, being self-contradictory, it has become desirable to review the salient facts, and to come to some conclusion, if possible.

The lower limit of his time.

The posterior limit of his time is fixed by the oldest MS. existing, viz., that of the *Kāla-viveka* (Ind. Govt. MS. No. 1568). The MS. itself is not dated, but has at the end a chart of nativity of a son born to one Ghaṭaka Siṁha, dated Śaka 1417 or 1495 A.D. The MS. should therefore be older than this date, how much older there are no proper materials to go upon, any inference from the difference in ink being purely guess work. The treatise must be still older. It would be thus fair to infer that the treatise cannot be later than the beginning of the fifteenth century.

This lower limit is fixed also by Jīmūtavāhana and his *Kālá-viveka* being quoted in the *Durg-otsava-viveka* of Śūlapāṇi.[2] Śūlapāṇi's date is as yet unsettled. But as his *Śrāddha-viveka* is quoted nearly twenty times in the *Śrāddha cintāmaṇi* of Vācaspati Miśra, it should be older than the second quarter of the fifteenth century. The *Durg-otsava-viveka* was a fairly late work of Śūlapāṇi quoting therein five of his own works. Its time will not be later than the first quarter of the fifteenth century and possibly a few years earlier. Jīmūtavāhana who is quoted as an authority must be considerably older than Śūlapāṇi, and cannot thus be placed later than the end of the fourteenth century.

Its upper limit.

The anterior limit is necessarily derived from the references in Jīmūtavāhana's works. He must be later than Bhojadeva, the king of Dhāra, of whom an inscription dated 1021 A.D. has been found.[3] He should be later than Viśvarūpa who is later than

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[1] The late Babu Golāpchandra Sarkār in his edition of the *Dāya-krama-saṅgraha* deduced from certain statements in the matchmaker's records that Jīmūtavāhana flourished about Saṁvat 1199 or the middle of the twelfth century. Paṇḍit Pramathanātha Tarkabhuṣaṇa in his preface to the *Kāla-viveka* (p ix) thinks that "he must have flourished in śaka 1013 or A.D. 1091." Sir Āshutosh Mukherjea in his preface to the *Vyavahāra-mātṛkā* (p. ii) remarks:—"Of one of these, Yogloka, he controverts the views frequently, and in one instance where he does this, his views were subsequently controverted by [*sic*. the author of] Cīntāmaṇi, which would seem to indicate that Jīmūtavāhana preceded Cintāmaṇi." Paṇḍit Haraprasad Shastri places him in the early part of the twelfth century (Rep., 1905, p. 10).

[2] The *Durg-otsava-viveka*, Sanskrit College *Cat.* MS. II, 335; for quotations from the *Kālaviveka* see its fol. 3a, 4b, 17b; for quotations under Jīmūtavāhana, see fol. 3b, 5a. The quotations under Jīmūtavāhana come from the *Kālaviveka*.

[3] *Ind. Ant.*, VI, p. 53.

Bhojadeva, having criticised the latter in his works.[1] Jīmūtavāhana must be considerably later than Viśvarūpa as not only is the latter quoted as an authority, but several writers had intervened, whose imputations on Viśvarūpa were met in the *Vyavahāra-mātṛkā*. So Jīmūtavāhana cannot be earlier than the end of the eleventh century.

The above conclusion is borne out by the mention of the Śākābda year 1013 (1091 A.D.) once and of the Śaka year 1014 (1092 A.D.) twice, while discussing the position of sun in Siṁha and Tulā.[2] Therefore the author should be later than 1092 A.D., and his time falls roughly between 1100 and 1400 A.D.

Let us now discuss the arguments of the "late" group.

His late age discussed.

Dr. Jolly would place Jīmūtavāhana not earlier than the thirteenth century, because Govindarāja (quoted four times by Jīmūtavāhana)[3] flourished in the twelfth or thirteenth century. Dr. Bühler also accepted Jolly's timing of Govindarāja.[4] But this conclusion does not appear to be correct. Govindarāja has been named at least three times in the *Hāra-latā* of Aniruddha Bhaṭṭa.[5] Aniruddha being the guru of Ballālasenadeva flourished by the middle of the twelfth century. Govindarāja having been quoted by him as an authority should therefore be placed considerably earlier than 1150 A.D. It is not possible to fix any upper limit for him beyond the fact that he would be later than Viśvarūpa whom he is said to have quoted. Any inference of a late age from the mention of Govinda-rāja by Jimūtavāhana thus falls to the ground.

Furthermore, according to some commentators on the *Dāya-bhāga*, Jīmūtavāhana criticized in three places the views of Caṇḍeśvara and in one place quoted the opinion of the *Ratnā-*

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[1] The *Smṛti-candrikā* of Devaṇṇa Bhaṭṭa. Vyavahāra Kāṇḍa, English translation, 1867 (Madras), pp. 178, 204.

[2] The *Kāla-viveka*, first Adhyāya, p. 21—तथा च चतुर्दशोत्तरसहस्रशक-वत्सरे सिंहस्थे रवौ द्विचित्रषात्; pp. 49-50—तथाहि चतुर्दशोत्तर सहस्रशाकाब्दे तुलास्थादित्याष्टमदिनोपक्रान्तस्य; p 64—तथा त्रयोदशोत्तरसहस्रशाकाब्दे. तुलादित्यस्य सप्तदशदिने ...

[3] Govindarāja is mentioned in the *Kālāviveka*, p. 304, in the *Dāya-bhāga* under XI. 2-23 (मनुटीका) and XI. 2-29, and in the *Vyavahāra-mātṛkā*, p. 342 (as स्मृतिमञ्जरीकार).

[4] J. Jolly, *Outlines of an history of the Hindu law*, Tagore Law Lectures, 1883, pp. 9, 22; Bühler, S.B.E. Vol. XXV, introd., p. cxvvii.

[5] The *Hāra-latā* (Bib. Ind.), p. 117, तानि भोजदेवविश्वरूपगोविन्दराजकामधेनुकृद्भिरलिखितान्मत्स्यपुराणवचनविरोधाच्च निर्मूलान्येव: p. 166, इति गोविन्दराजलिखितवृद्धप्रचेतोवचनात्; p. 174, इति तद्गोविन्दराजविश्वरूपकामधेनुकारैर्न लिखितमित्यमूलमेव प्रतिभाति।

kara, Miśra and others.[1] This, if true, would make Jīmūtavāhana later than Caṇḍeśvara and Miśra (i.e. Vācaspati Miśra). But Jīmūtavāhana does not anywhere name either Caṇḍeśvara or Vācaspati Miśra. In the only place the commentator has cited Miśra he seems to refer rather to the opinion of a school than to that of any individual writer. On the other hand the *Kāla-viveka* of Jīmūtavāhana is quoted as an authority not only in the *Śrāddha-cintāmaṇi*[2] of Vācaspati Miśra, but also in the *Durg-otsava-viveka* of Śūlapāṇi who as I have already pointed out (p. 12) preceded Vācaspati Miśra.

As regards Caṇḍeśvara, the commentators seem to refer to the opinion of the school as recorded by Caṇḍeśvara. Even if the commentators had meant to refer this passage to Caṇḍeśvara in person, their remark can have little value historically on account of their ignorance about sequence. In fact, in none of Jīmūtavāhana's works has been found any indication that he knew the *Ratnākara*. In the quotations of the Dāya-bhāga section there is, no doubt, a fair similarity between the *Vivāda-ratnākara* and the *Dāya-bhāga*. But on comparison I find that in the *Vivāda-ratnākara* out of about 550 quotations all excepting probably two dozens have been borrowed from the *Kṛtya-kalpa-taru*, *vyavahāra-khaṇḍa*. So this similarity in quotations gives no help in deciding the question of priority, and the onus is on those who assert the late age of Jīmūtavāhana on this ground.

To me the most serious objection to the assumption of an early age lies in the fact that neither Jīmūtavāhana nor any of his works has as yet been traced by name in any of the smṛti compilations of the twelfth to fourteenth centuries. If such important works had really existed, why were they not noticed by any smṛti-writers until we come to the time of Śūlapāṇi? To this question no satisfactory answer has been given and none is really possible until all the available smṛti works of the period are critically examined. But at present to infer non-existence from mere silence would be rash. In the *Catur-vargga-cintāmaṇi* of Hemādri, a huge compilation which is being printed in the Bibliotheca Indica for nearly half a century

[1] Under II. 27, p. 67, इति चण्डेश्वराद्यनुमतमिदमपाकर्तुमाह (Acyutānanda followed by Śrīkṛṣṇa); under IV. 3. 23, p. 169, अत्र चण्डेश्वरादि स्वरचित प्राचीनमतमधिक्षेप्तुमाह (Acyutānanda and Śrikṛṣṇa); under XI. 1. 31. p. 265, इति रत्नाकरादिमतमपि निष्प्रमाणमित्यन्यथा सिद्धान्तयति सम्मतीति (Acyutānanda and Śrīkṛṣṇa); under XII. 4, p. 344, इति रत्नाकरमिश्रादिमत प्रत्युक्तं (Raghunandana). The केचित् in XI. 1. 19 is explained by Maheśvaa as referring to मैथिलमतं (p. 255).

[2] The *Śraddha-cintāmaṇi* (the Bengali printed edition of Benares, śk. 1814), p. 59 (twice).

covering four thousand pages and far from completion as yet, not a single Gauṛīya smṛti work or writer can be traced. Yet authors like Bhavadeva, Aniruddha, Ballālasenadeva, Halāyudha had flourished in Gauṛa, preceding Hemādri authentically by a century or more.

Some explanation of this non-mention may lie in the peculiar nature of Jīmūtavāhana's productions and in the peculiar condition of the political history of Gauṛa. Jīmūtavāhana wrote treatises on special sections of the Dharma-śāstra, the *Kāla-viveka* treating of time, the *Vyavahāra-mātṛkā* of legal procedure and evidence, the *Dāya-bhāga* of inheritance and division. They approach more nearly the nature of modern books, and are as different from the ordinary smṛti compilations as modern books are from them. He quoted authorities to prove certain conclusions (evidently to support the *factum valet*), while the other writers simply gathered the quotations on a certain point of law, whether these quotations agreed or differed, and where they did not agree attempted to reconcile them by mere verbal interpretations. Jīmūtavāhana thus differed from the ordinary smṛti writers of the mediæval period, and the result was that he was ignored, specially as he did not appear to have put himself under the patronage of any powerful king or minister.

Furthermore, from the end of the twelfth century downwards, Bengal was overrun by hordes of Turks and other illiterate tribes. They ravaged the land and gradually dispersed all centres of learning. Only a few centres in the outlying tracts escaped, and a few of the learned men saved themselves only by flight to safer tracts as Mithilā or Orissa. The result was that until Sanskrit learning began to revive in the fifteenth century, Gauṛīya scholarship and composition remained dormant, and the outside world of Sanskrit learning knew very little of the older scholarship in Gauṛa except by vague and generally nameless traditions. Even in Mithilā, which had not lost all connexion with Bengal, the references run vaguely as *Gauṛāḥ*, *Gauṛa-vākyāni*, *Gauṛā-smṛti*, *Gauṛa-nibandha*, or still more vaguely as *Prāñcaḥ*. [1]

[1] For such references see, for example, Śrīdatta's छन्दोगाह्निक, Ind. Govt. MS. No. 2903, fols. 8a and 43a (गौडाः), 8b (गौड़निबन्धकृतो), 15a (गौडीयस्मृति) ; and Caṇḍeśvara's कृत्यरत्नाकर, Bengal As. Soc. MS. III. D. 19, fol. 206, 55a, and 121b (गौडाः), 43b, 54b(2) and 96a गौडवाक्यानि), 75a and 125a (गौडनिबन्ध), 111b and 149b (गौडस्मृति). For प्राञ्च, see Śrīdatta's आचारादर्श, Benares ed. (Saṁvat 1924), p. 166. The *Dāna-sāgara* was the only Bengali work quoted by name in the *Kṛtya-ratnākara*, and in the *Dāna-vākyāvalī* of Caṇḍeśvara and of Vidyāpati.

In the midst of this haze some faint gleam of light may be visible from the following facts.

His early age.

Taking up the subject of festivals prevalent in and peculiar to Bengal, I find a fair similarity in the quotations given in the *Kāla-viveka* and the *Kṛtya-ratnākara.* For example on the *Durg-otsava*, the great festival of Bengal, the *Kāla-viveka* has a special section (pp. 511-530), in which are quoted 44 verses; of these 24 appear in the Āśvina-kṛtya of the *Kṛtya-ratnākara.* Similarly about the other special festivals of Bengal, e.g., about the Daśaharā, the *Kṛtya-ratnākara* quotes 8 out of 17 verses in the *kāla-viveka* and calls them **महाजन-परिगृहीत गौडवाक्यानि**, Kojāgara (all the two), Bhrātṛ-dvitīyā (4 out of 6), Śrī-pañcamī (6 out of 12), Aśok-āṣṭami (6 out of 10). It is possible that both borrowed from some common stock of Gauṛīya compilation; but until that stock is found out it is as much reasonable to infer that the *Kṛtya-ratnākara* had borrowed them from the *Kāla-viveka*, not directly for then the work would have been likely named, but indirectly as Gauṛīya-smṛti.

Again, the *Kāla-viveka* has a special section on the ascertainment of (the kind of) oil (to be used), *taila-nirūpaṇam* (pp. 373-380). Śrīdattopādhyāya the Maithila in his *Chāndog-āhnika* also speaks on this subject as laid down by logicians. *tārkikaiḥ*, and adds that according to Gauṛas boiled oil is not prohibited. Here Śrīdatta may be borrowing from some common stock, but the data available at present do not shut out the view that he might have borrowed from the *Kāla-viveka* indirectly.

In support of the earlier timing it may be further urged that the smṛti-writers generally quote astronomical calculations which are near to their time, that is, which may be within their knowledge or memory. Hence the dates, Śaka 1041 and 1042, mentioned in the *Kāla-viveka* (pp. 21, 49, 64) stood near to the time of the composition of that work, and therefore it cannot be put much later than 1100 A.D.

Beginning of the Twelfth Century A.D.

Jīmūtavāhana's time may thus be tentatively put in the beginning of the twelfth century. The authorities quoted by Jīmūta-vāhana are all old, and their times, so far as known, are not inconsistent with this conclusion.

In the absence of any cross-quotations it is not practicable to say which work of Jīmūtavāhana was composed first. Judging from the subject-matter alone, the *Kāla-viveka* which deals with the fasts and festivals would have been taken up first; and then the *Vyavahāra-mātṛkā*, which deals with the legal procedure and evidence; and lastly the *Dāya-bhāga* which deals with inheritance and division, which formed sections of

The Sequence in his Works.

Vyavahāra almost towards the end. Also from the discussions a progress in the compression of words and in the less frequency of quotations is perceptible in the works as placed above, probably indicating a more and more ripe judgment. There can be no doubt that the *Dāya-bhāga* enunciates considerably advanced ideas of law on inheritance and partition, and displays an acute intelligence, a wide grasp of the subject, and a skill in marshalling the authorities in favour of its views. Dr. Jolly remarked :—"The celebrated Dāya-bhāga of Jīmūtavāhana will always occupy one of the foremost ranks in Hindu law literature as being the leading authority of the Bengal school."

II. Halāyudha Bhaṭṭa.

In a previous article of mine[1] Halāyudha had been touched upon but very briefly. He deserves a fuller treatment, and will be discussed under three headings :—

A. His literary works.
B. His family.
C. His time.

A. HALĀYUDHA'S LITERARY WORKS.

All our authentic knowledge on this head is derived from certain introductory verses of his *Brāhmaṇa-sarvvasva.* He says :—I (Halāyudha) made the *Mīmāṁsā-sarvvasva*, the *Vaiṣṇava-sarvvasva*, the *Śaiva-sarvvasva*, and the *Paṇḍita-sarvvasva*, (they being) the whole property of the learned."[2] In finding out other works of this writer besides these, it is necessary to point out that in the field of Sanskrit learning the name Halāyudha (lit. plough-bearer, an epithet of Balarāma, the elder brother of Śrīkṛṣṇa) was borne by more than one person. They are liable to be confounded with one another, as Rājendralal Mitra did in his *Notices.*

i. The Mīmāṁsā-sarvvasva.

One copy of the *Mīmāṁsā-śāstra-sarvvasva* exists in the India Government collection. Hall and Rājendralal Mitra identify this work with Halāyudha's *Mīmāṁsā-sarvvasva.*[3]

The I.G. MS. consist of 83 folios, in three separate frag-

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[1] See my article on "Sanskrit Literature in Bengal during the Sena Rule," J.A.S.B., 1906, p. 176.

[2] The *Brāhmaṇa-sarvvasva* (Benares ed., Saṁvat 1935), fol. 4b :—

मीमांसासर्व्वस्वं वैष्णवसर्व्वस्वमकृत शैवसार्व्वस्वम् ।
पण्डितसर्व्वस्वमसौ सर्व्वस्वं सर्व्वधीराणाम् ॥ १९ ॥

[3] Hall, *Contributions*, p. 207; Mittra, *Notices*, iv. 102, No. 1507.

ments, A, B, and C. A has 24 folios, with normally 7 lines to a page. B has folios numbered 29, but really 30, the figure 13 having been repeated on folio 14. C has 29 folios. B and C have normally 8 and 7 lines to a page. By oversight, the contents of 29a to 30b in B have been again written in C, 1a to 3a. The contents are otherwise continuous.

The context shows that it is a running commentary on the *Mīmāṁsā-sūtras* of Jaimini. The MS. is a fragment extending only up to the end of the fourth foot of the third Adhyāya out of twelve Adhyāyas.

The MS. mentions Halāyudha nowhere. The colophons at the end of each pāda name the work generally as *Mīmāṁsā-śāstra-sarvvasva.* Only once, at the end of the second pāda of the third Adhyāya, the work has been named *Mīmāṁsā-sarvvasva.*[1]

Besides some Vedic names, the Chāndoga, Vājasaneya, Kāṭhaka and the *Śatapatha-brāhmaṇa*, and the names of some sects, *Sāṅkhya-yoga-pañcarātra-pāśupata-Śākya-Nirgrantha-nirmitāni Dharma-śāstr-ābhāsani*, the MS. mentions specially the *Bhāṣya* and the *Bhāṣya-kāra* (on Jaimini's *sūtras*), the *Vārttika*, and the *Vārttikara-kāra* (Kumārila), and Maṇḍana. Among smṛti-writers I find the *smārtaḥ*, Manu, and what is more interesting the smṛti work of a Pāṇini, *Panini-smṛtiḥ* (B fol. 46). Among later works only one has been found, the *Nyāya-ratnākara* (*Iti tad-vyākhyāyām Nyāya-ratnākaraḥ*, A fol. 3a) of Pārthasārathi Miśra. The *Ācāryāḥ* are mentioned several times.

The Benares College Library *catalogue* shows a MS. named *Mīmāṃsā-sarvvasva.* On examination I found the name to be a mistake. The MS. is a fragment without beginning or end, only 20 folios existing. The folios are in a bad state, torn and decayed, some already crumbled at the right-hand side. On a folio marked 28 (b), one colophon can be traced, सिद्धान्तसर्व्वस्वे द्वितीय अध्यायस्य तृतीयपादः। So this work appears to be another commentary on Jaimini's *sūtras* and has been thus confounded with the *Mīmāṁsā-sarvvasva.* In fact on the top of the first folio the name had been correctly entered as *Siddhānta-sarvvasva*, but another hand added by its side *Mīmāṁsā-sarvvasva*, a mistake which was copied in the catalogue.

ii. *The Vaiṣṇava-sarvvasva.*

No MS. of this work has yet been found, and no reference to it can be traced in the later smṛti literature.

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[1] Ind. Govt. MS. No. 583, A. fol. 66, मीमांसाशास्त्रसर्व्वस्वे प्रथमाध्यायस्य द्वितीयः पादः ॥ C16a, इति मीमांसासर्व्वस्वे तृतीयाध्यायः [द्वितीय] पादः ॥ ० ॥ This MS. is noticed in R. Mittra's No. 1507.

iii. *The Śaiva-sarvvasva.*

No MS. found yet. In the *Maṭha-pratiṣṭhā-tattva* of Raghunandana are quoted two verses from one *Śiva-sarvvasva*, regarding the gift of different vehicles to different deities with flags.[1]

iv. *The Paṇḍita-sarvvasva.*

No MS. yet found. In the *Prāyaścitta-tattva* of Raghunandana is quoted a verse from the *Paṇḍita-sarvasva* of Halāyudha, on the performance of the Prājāpatya in penance for killing an untended cow.[2]

v. *The Brāhmaṇa-sarvvasva.*

By this work Halāyudha is best known. Its main object is to give the Brāhmaṇas a good knowledge of the *meanings* of the various Vedic mantras used in the daily āhnikas and the periodical saṁskāras. Halāyudha remarks thus in the beginning[3]:—

From Manu's words (verse quoted above), it is proved that a Brāhmaṇa who does not read the Vedas, and who refrains from understanding the meaning of the Vedas has become a Śūdra. Now in the Kali (age) from a decrease in life, intelligence, zeal, faith, etc., the Utkalas, the Pāścātyas and others only read the Vedas; while the Rāṛhīyas and the Vārendras without reading by means of the karmma-mīmāṁsā discuss only the nature of sacrificial rites in connection with the Vedas. But by that there can be no (proper) knowledge of the Mantras forming the soul of the Vedas. .... In this way the Rāṛhīyas and Vārendras merely create improper conduct."

In the final sixteen verses of the introduction (vv. 28-42, 44), the forty sections of the work are named. These may be roughly divided into two groups, firstly, the daily āhnika rites from the mouth-washing up to sleep including the daily śrāddhas to fathers, and secondly, the periodical ācāras including the ten saṁskāras of a Brāhmana's life. Every such rite involves the recitation of Vedic mantras, whose explanation, the *Mantra-vyākhyā*, forms the chief peculiarity of the work. On this head the author acknowledges his indebtedness to Uvaṭa and Guṇa-viṣṇu.[4] Uvaṭa is the author of the *Mantra-bhāṣya* (Vājasaneyi Mâdhyandīna Śākhā); and Guṇa-viṣṇu of the

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[1] The *Aṣṭāviṁśati-tattva*, Srerampore ed., vol. I, p. 313. The *Śiva-sarvvasva* is quoted also in the *Nirṇaya-sindhu* of Kamalākara.

[2] The *Aṣt. Tat.*, Sr. ed., I. 313, इति पण्डितसर्व्वस्वे हलायुधः.

[3] The *Brāhm. sarv.* (Benares ed.), pp. 7a and 7b.

[4] For Uvata, see the Ben. ed., p. 4b, and I. O. 1640 (III. 520), verses 20 and 21.

Gobhila *Gṛhya-mantra-bhāṣya* (Chāndoga). Halāyudha wrote for the Vājasaneyi Kānva-śākhā.

There are the usual references to Purāṇas, and Smṛti-kāra Ṛṣis. Speaking broadly one finds the Yogī-Yājñavalkya quoted frequently in the earlier portion; Kātyayana (of the *Chandoga-pariśiṣṭa*) in the Śrāddha section, and Pāraskara (of the *gṛhya-sūtra*) in the ten Saṁskāra section. References are also found to the *Viṣṇu-dharmma*, the *Viṣṇu-dharmmottarīya*, the *Yayur-veda-bhāṣya*, Karka-*bhāṣya* on Pāraskara, the *Yajñapārśa* and the *Vṛhad-yajñapārśa*. The latest work quoted is the *Śuddhi-dīpikā* (of Śrīnivāsa). This verse (astrological) runs thus:—

"The ceremony of fire-setting should be done on Tuesday and Thursday, in the six months following Māgha, under the stars mild, fixed or fiery, and excluding the times made inauspicious by the connexion of the zodiacal signs of Kumbha and lotus groups, having the moon and Venus in the lagna."

On this Halāyudha notes:—

"The mild stars (are) Anurādhā-Citrā, Revatī-Mṛgaśiras: the fixed stars Uttara-Phālguṇi, Uttarāṣādhā, Uttara Bhādra-pada and Rohini; the fiery star Kṛttikā; and (the rāśis) having part in the pitcher and the lotus are Mina-Karkaṭa-Makara."[1]

The *Brāhmana-sarvvasva* has been quoted several times in the *Aṣṭāviṁśati-tattva* of Raghunandana, twice at least with the name of Halāyudha attached.[2] It is quoted as an autho-

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व्यासश्लाः कति संति वा कति न किं व्यामण्डले पण्डिता
व्याख्यातो मतिशालिनात् यमुवटाचार्य्येण वेदः परं ।
अस्पष्टं तदपीत्यनेन विदुषा विश्वप्रसिद्धैः पदैः
सन्ध्यादिद्विजकर्म्ममन्त्रवचसां व्याख्यानमेतत् कृतं ॥ २० ॥
किं तस्मिनुवटेन वर्त्मरचितं प्रागेव चेद्विद्यते
व्याख्यानं कियदेकवचसां तेनेदमारभ्यते ॥ २१ ॥

For Guṇa-viṣṇu, see the *Daśa-karma-vyākhyā* section of the *Brāhmaṇa-sarvvasva*, fol. 1a, of the palm-leaf MS. (Sans. Coll. *Cat.* II. 305).

निर्घण्टं प्रसमीक्ष्य सारस्वगतं व्याख्यान्वये ब्राह्मणं ।
व्याख्यातं गुणविष्णुमर्थनिपुणान् शिष्टैकदोषागुरून् ॥ [३ ॥]

[1] See the Benares ed., p. 117a-b. वह्निस्थापनं ।
कुजगुरुषु अनुमासे माघादिषट्सु च मृदुध्रुववह्निभेषु ।
कुम्भाब्जां शकविलग्नमघ्नकालं लग्नस्थशीतगुसितौ च विहाय कुर्यात् ॥ [viii. 127]
मृदुनक्षत्राणि अनुराधाचित्रारेवतीमृगशिरः [see iv. 16], ध्रुवनक्षत्राणि उत्तरफल्गुणी-उत्तराषाढ़-उत्तरभाद्रपद रोहिणी [iv. 12], वह्निभानि कृत्तिका [iv. 17]. कुम्भाब्जांशकामीनकर्कटमकरांशाः [i. 15]. The numbers within the square brackets give the Adhyāya and the verse of the *Śuddhī-dīpikā*, the Ind. Govt. MS. No. 214.

[2] *Aṣṭ. Tatt.*, Srerampore ed., (Śuddhi) ii. 175, (Āhnika) i. 233. (Sāma-śrāddha), i. 53, ब्राह्मणसर्व्वस्वे हलायुधेन व्याख्यातान्, (Yajuḥ-śrāddha) ii. 276, इति ब्राह्मणसर्व्वस्वे हलायुधः.

rity in the Yajurvedi *Mantr-ārtha-dīpikā* [1] of Satrughna, in the Chāndoga *Mantra-kaumudī* of the Dākṣinātya Aniruddha Bhaṭṭa, and by Varddhamāna in the *Gaṅgā-kṛtya-viveka*.

vi. The Dvija-nayana.

A MS. under this name has been described in the *Notices* of Rājendralāl Mitra as being of Halāyudha.[2] Its introductory verse No. 2 appears to be the same as the introductory verse No. 27 of the *Brāhmaṇa-sarvvasva* in a distorted form. Beyond this there is nothing in the very brief extract to support the identification, the MS. being incomplete. But the name cannot be *Dvija-nayana*, which must be construed as a common noun meaning metaphorically "of the eyes of the twice-born." The MS. is said to give astrological rules for determining the exact time of the passage of the sun from one sign to another, and the moments most appropriate for performing such ceremonies as are enjoined on such occasions.

vii. The Srāddha-paddhati-ṭīkā.

In some of the Reports in search of Sanskrit MSS. a commentary on Paśupati's *Srāddh-paddhati* is attributed to Halāyudha. In the *Brāhmaṇa-sarvvasva* (v. 24) Halāyudha says distinctly that he made only the Mantra-vyākhyās of the funeral section while his brother made the *Paddhati*. The work reported therefore requires further examination. It may be the production of an older Halāyudha, for a Halāyudhīya *śrāddh-ādhāya* is quoted in Maithila Śrīdatta's *Pitṛ-bhakti*.[3]

B. HALĀYUDHA AND HIS FAMILY.

In the introductory verses of the *Brāhmaṇa-sarvvasva* the author gives some information of himself and of his family. From the information there given, the following genealogical chart may be drawn up :—

Dhanañjaya (in the *vaṁśa* of Vātsya muni, *dharm-ādhyakṣa* or Judge, v. 5). = Ujjalā (v. 8).

- Paśupati, wrote the *Śrāddha-kṛtya-paddhati* (v. 24), and the *Pāka-yajña-paddhati* (v. 43, *cf.* p. 8*a*, 124*b*),[4] Āvasathika (p. 124*b*).
- Iśāna, wrote the *Dvij-āhnika-paddhati* (v. 24).
- Halāyudha.

Halāyudha flourished during the rule of Lakṣmaṇasena-deva. As he says (in v. 12) :—" Having in his early age (*bālye*)

[1] R. Mittra, *Notices*, Nos. 1936 and 3383; Br. Mus. Cat., No 198.
[2] R. Mittra, *Notices*, Vol. II, p. 66, MS. No. 633.
[3] The *Pitṛ-bhakti* (Ind. Govt. MS. 5767), fol. 17*a*, 20*b*, 25*a*.
[4] The *Br. sar.*, Benares ed., p. 124b, पाकयज्ञपद्धतिश्च सविवस्थानश्राद्धेष्टा-वसथिकपशुपतिकृताऽस्त्येवं सैव लोके प्रसिद्धा, तेनास्माभिरस्मिन्विषये न कृतेति ।

distinguished him with the post of Rāja-paṇḍita, having in his early youth (*nave yauvane*) given him the post Mahāmahat honoured with umbrella bright as the moon, the illustrious Lakṣmaṇasenadeva, a Nārāyana among rulers, gave him the post of judge (*dharm-ādhikāraṁ*) fit for the close of youth."[1]

In some introductory verses and final colophons of the sections, he calls himself *Āvasathika* (9 times), *Mahā-dharm-ādhyakṣa* (4), *Mahā-dharmādhikṛta* (3), or simply *Dharm-ādhy-akṣa* (7), *Dharm-ādhikārin* (1), *Dharm-ādhikṛta* (2), and *Dharm-āgār-ādhikārin* (1). His patron Lakṣmaṇasena is referred to several times with such titles as *Gauṛa-mahi-mahendra*, *Gauṛeśa*, *Gauṛendra*, *Kṣmā-pati*, *Kṣauṇi-pāla*, and *Gauṛa-vasudhādhiśa*.

It is thus clear that he comes of a learned family and that he himself must have shown sufficient ability and industry to have been raised to the post of *Mahādharmādhyakṣa*, or a Puisne Judge of the royal court.

The Genealogy of Halāyudha.

- Bhaṭṭa Nārāyaṇa.
  - Ādī varāha.
    - Vīnātibhā.
      - Savadhi.
        - Vivudhāsya.
          - Gayā.
            - Gaṅgādhara.
              - Vidyādhara.
                - Vanamāli.
                - Dharaṇidhara.
                  - Tārāpati.
                    - Nandarāma.
                    - Gaṅgārāma.
                      - Uṣāpati.
                        - Surendra.
                          - 4 brothers.
                          - Rāmarūpa or Dhanañjaya
                            - Paśupati.
                            - Halāyudha.
                              - Vibhūdhara.
                            - Iśāna.

[1] The *Br. sar.*, Benares ed., p. 3*a* :—

Halāyudha's name appears in the records of the match-makers as a descendant of Bhaṭṭā Nārāyaṇa. These traditions undoubtedly become more and more unreliable the more distant time the events related are separated from the records. However, for the curious, I extract the names of the ancestors of Halāyudha as given in the genealogical chart drawn up by Paṇḍit Bharatcandra Śiromaṇi for his patron Prasannakumāra Tagore and printed in the beginning of his edition of the *Dāya-bhāga* (1863).

In this list Halāyudha, fourteenth in descent, is wrongly shown as elder brother of Īśāna. Paṇḍit Yogeśachandra Sastree was of opinion that Halāyudha, the author of the *Brāhmaṇa-sarvvasva*, was a quite different person from Halāyudha the ancestor of the Tagore family.[1]

C. HALĀYUDHA'S TIME.

There is the usual uncertainty about his time. The lower limit is fixed by three of his verses being quoted in the *Sūkti-* (or *sadukti-*) *karṇ-āmṛta*, which was completed in Śaka 1027 or 1206 A.D. So he must be older than this year. As in the *Brāhmaṇa-sarvvasva* he speaks of having spent the best year of his life in the service of Lakṣmaṇasenadeva, the king of Gauṛa, he must be a contemporary of that king. The king reigned from 1170 to *circa* 1200 A.D.[2] So Halāyudha's time falls in the fourth quarter of the twelfth century (1175—1200 A.D.).

To this timing of Lakṣmaṇasena, Babu Rākhāldāsa Banerjea, following an early opinion Dr. Kielhorn, has raised an objection.[3] From the use of the word *atīta-rājye* in the two known inscriptions of Lakṣmaṇasena he infers that Lakṣmaṇasena had gone away by that time, i e., had ceased to exist before 1170 A.D. The context of the inscriptions is no doubt peculiar. But I think the difficulty may be solved if the word *atīta* be applied to the subsequent words *saṁ* 51. In Hindu calendars the years are generally expired. Śaka 1836 (the equivalent of 1914-5 A.D.) means that 1836 years of the Śaka king's era have gone away and that 1837th year is current. In inscriptions and literary MSS. this "expired-ness" of the

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बाल्ये ख्यापितराजपण्डितपदः श्वेतांशुबिम्बोज्ज्वल-
च्छत्रोत्सिक्तमहामहत्तमपदं दत्त्वा नवे यौवने ।
यस्मै यौवनशेषयोग्यमखिलक्ष्मापालनारायणः
श्रीमांल्लक्ष्मणसेनदेवनृपति धर्म्माधिकारं ददौ ॥ १२ ॥

[1] J.A.S.B., 1905, p. 39.

[2] See my article on the *Pavana-dūtaṁ*, the Appendix on "The Sena Dynasty of Bengal," J.A.S.B., 1905, p. 50.

[3] Babu Rākhaldāsa Banerjea, on *Laksmanasena*, J.A.S.B. 1913, pp. 273 *et seq.*; and *The Pālas of Bengal*, A.S.B. *Memoirs*, vol. v, pp. 105-6.

year is sometimes emphasised by adding words like *atīta* or *gata.* I need not burden this article with many extracts on this point. Five extracts will, I think, suffice for comparison with the context of the Lakṣmaṇasena inscriptions :—

1. Ujjain, copper-plate of Bhojadeva—*Atīt-āṣṭa-śapta-by-adhika-sāhasrika-saṁvatsare.*[1]
2. Yaśovarmadeva's grant—*Śrī-Vikrama-kāl-ātīta-saṁvat-sara-aika-navaty-adhika-śat-aikāda*[*śe*]*ṣu.*[2]
3. Udayavarmadeva's Bhopal C.P :—*Śrī-Vikrama-kāl-ātīta-ṣaṭ-pañcāśa*(*śa*)*d-adhika-dvādaśa-śata-saṁvatsar-āntaprā* (*pā*) *tī.*[3]
4. Narasiṁhadeva iv's Puri C.P :—*Śaka-nṛpater-atīteṣu pañc-ādhikeṣu trayodaśa-śata-saṁvachchhareṣu.*[4]
5. The date of the composition of Udayanācārya's *Lakṣaṇāvalī* :—*Tark - āmbar - āṅk-pramiteṣv-atīteṣu Śak-āntataḥ.*[5]

All these and more indicate that the years, Vikrama or Śaka, were declared expired by the express use of the word *atīta.* In a similar way by the use of the word *atīta* before the years 51 and 74 of the Lakṣmaṇasena era it was meant that these years were expired, and not current.

Apart from Halāyudha's mention of his connexion with the King Lakṣmaṇasenadeva, I have found at least one passage which helps in fixing the upper limit. It is the passage quoted *supra* about the setting up of the fire. In this he quotes fully the verse viii, 127, and partially i. 15, iv.12, 16 and 17 of *Śrīnivāsa's* astrological work, the *Śuddhi-dīpikā.* This author wrote also the mathematical work *Gaṇita-cūṛāmaṇi,* as the very peculiar title of the author in both, *Mahintā-paṇiya* etc., signify. The *Gaṇita-cūṛāmaṇi* has not yet been traced. From an extract quoted under the head *Yuga* in the *Pada-candrikā* of Bṛhaspati Rāyamukuṭa, and in the *Padārtha-kaumudī* of Nārāyaṇa Cakravarttī, the time of the *Gaṇita-cuṛamaṇi* is expressly given as Kaliyuga 4260 or 1159-60 A.D.[6] Whether the *Śuddhi-dīpikā* or the *Gaṇita-cuṛāmaṇi* was

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[1] *Ind. Ant.* Vol. VI, p. 53. [2] *Ind. Ant.* Vol. XIX, p. 353.
[3] Do. Vol. XVI, p. 254.
[4] J.A.S.B., 1895, p. 136, edited by me.
[5] The *Lakṣaṇāvalī*, Pr. ed., p. 12.

[6] See I. O. MSS. 954, 956, the *Pada-candrikā* :—तथा च गणित-चूडामणौ महिन्तापनीयराजपण्डितश्रीनिवास कलिसंध्यायाः खसमयकरहतवर्षाणि भूतानि ४२६० ॥ *Cf.* also तथा च गणितचूडामणौ श्रीनिवासः कलिसन्ध्यायाः खसमयकरहतवर्षाणि भूतानि ४२६० ॥ in the *Padārtha-kaumudī.* The final colophon of the *Śuddhi-dīpikā* (I. G. MS. 214) runs :—इति महिन्तापनीय-पण्डित श्रीनिवासकृतायां शुद्धिदीपिकायां यात्रानिर्णयो नामाष्टमोऽध्यायः ॥ fol. 47*a*. I. G. Ms., No. 214.

older there is no means of knowing at present. But their author Śrīnivāsa can at any rate be taken to have flourished about 1160 A.D.; and Halāyudha who quotes his work as an authority should be still later. This brings him to the fourth quarter of the century, the time already found out from other sources.

Miscellaneous.

Before concluding I would point out that Halāyudha of the *Brāhmaṇa-sarvvasva* is apt to be confounded with other writers bearing the same name. Firstly, he should be distinguished from Mahāmahopādhyāya Halāyudha, the author of the *Karm-opadeśini*, a manual of rules for the daily āhnika rites. The work quotes the *Kalpa-taru* (fol. 21*a*), *Kalpa-tarukār-ādayāḥ* (53*b*) and Śūlapāṇi (*śrāddha-bhede vyākhyātaṁ Śūlapāṇinā*).[1] So its author must be later than the fifteenth century A.D., the date of Śūlapāṇi.

Secondly, he should be carefully distinguished from the jurist Halāyudha. The latter has been frequently quoted in Maithili works, for example 7 times in the *Vivāda-cintāmaṇi* of Vācaspati Miśra, and no less than 53 times by name and three times by his work named as *Halāyudha-nibandhaṁ* in the *Vivāda-ratnākara* of Caṇḍeśvara. Halāyudha of the *Brāhmaṇa-sarvasva* is not known to have written any works on law. Furthermore, this jurist Halāyudha was quoted also in the *Vyavahāra-Kalpataru* of Lakṣmīdhara[2] who had preceded the judge of Lakṣmaṇasenadeva by at least half a century.

Thirdly, a Halāyudha is quoted by Śūlapāṇi (some 13 times in his *Śrāddha-viveka*) and by Vācaspati Miśra (some 5 times in his *Śrāddha-cintāmaṇi*). Though criticized now and then his work was treated as an authority on Śrāddha. It is not known definitely if the Judge Halāyudha ever wrote any distinct treatise on Śrāddha, and if so, until it is found and examined, whether that work was referred to by these writers. For the present it would be safer to deal with this authority as distinct from the subject of the present article.

Halāyudha was the last notable Smṛti-writer of old Bengal. After him followed a period of darkness, pitchy blind in nature and unilluminated for two centuries by a single ray of light. This amazing blankness in the intellectual field is a most remarkable phenomenon in the history of Bengal, but none has yet cared to notice it or to find out its cause. The main cause is, of course, the Musalman eruption. Bursting like a storm it swept over the land scattering and destroying the centres of

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[1] Sansk. Coll. MS., II, 479, wrongly entered as *Brāhmaṇa-sarvvasva.*

[2] The *Vyavahāra-kalpataru*, I. G. MS. No. 1437, fol. 66*b*, 67*a*. Aufrecht has confounded the two in his *Catalogos Catalogorum*, Vol. I (s.v. Halāyudha).

learning. Life and property became insecure. With the higher class more or less absorbed in the fight for self-preservation, any steady pursuit of knowledge became next to impossible. Thus the land came to be denuded of scholars and of the fruits of their brains.

III. Śūlapāṇi Upādhyāya.

Śūlapāṇi is an honoured name in the Bengal school of law. Unfortunately very little authentic is known of him and of his works. The object of the present article is to supply some reliable information about him, classified under the following headings :—

A. His Works.
B. His Family.
C. His Time.

A. HIS WORKS.

Śūlapāṇi wrote both commentaries and original treatises. The commentaries are taken up first.

A. Commentaries.

(*i*) *The Dīpa-kalikā.*

Among the Dharma-śāstras, the *Yājñavalkya-saṁhitā* ranks next in importance only to the *Manu-saṁhitā*. Hence it was often commented upon. Several of the commentaries were deemed nearly as important as the original, e.g., those of Viśvarūpa, Vijñāneśvara (the *Mitākṣarā*), Aparārka, Śūlapāṇi, the *Vīramitrodaya*, etc. Among them not the least important was Śūlapāṇi's *Dīpa-kalikā*. It was and is still considered among the Gauṛīyās as influential as the nearly contemporaneous commentary of Kullūka Bhaṭṭa on the *Manu-saṁhitā* (the *Manvārtha-muktāvalī*).

This work has not yet been printed.[1] It appears to be among the very earliest of Śūlapāṇi's works. It does not mention any of his other works. On the other hand several of them seem to be subsequent amplifications of certain sections of this commentary, e.g. the *sambandha-viveka* seems to be an enlargement of the section on marriage (first Adhyāya, folios 5*b*-9*b*), the *Śrāddha-viveka*, of the section on funeral (first Adhy., 17*b*-20*b*), the *Prāyaścitta-viveka*, of the section on expiations (third Adhy., fols. 60*a*-73*b*), and so on.

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[1] I am using the Sanskrit College MS. II, No.78. As it has not been properly described, a brief description is given here. Country-made yellowish paper, 1a to 72b, $17'' \times 3\frac{5}{8}''$, 8 lines to a page, 4 lines on the last page, characters Bengali, middle-sized, legible, on the front page a note "written by Ramsharan, 14th September, 1824." The 1st Adhyāya ends on fol. 24, line 1, the second Adhy. on fol. 47*a*, line 1, and third Adh. on 72*b*, line 3-4.

Its quotations and references are very few, e.g., the *Kalpataru* (once), Govindarāja (once), the *Mitākṣarā* (once), the commentator Medhātithi (once), the lexicon *Viśva* (once) and Viśvarūpa, the well-known commentator on Yājñavalkya (five times). Neither Jīmūtavāhana nor his works are named, but the views expressed under the Dāyabhāga sections of Yājñavalkya seem to agree generally with those of Jīmūtavāhana.

(ii) *The Pariśiṣṭa-dīpa-kalikā.*

No MS. yet found. It is mentioned by Raghunandana in his Śuddhi tattva,[1] and apparently included a section on the Vṛṣ-otsarga ceremony.

B. Original Treatises.

The Smṛiti-viveka.

Sūlapāṇi wrote a number of small treatises which apparently formed parts of a general treatise by name the *Smṛti-viveka* or discussion of Smṛti subjects. This treatise should be distinguished from the older *Smṛti-viveka* of Medhātithi, the earliest existing commentator of the *Manu-saṁhitā*. The latter is quoted not only by Medhātithi in his own *Bhāṣya* on Manu, but abbreviated to the word *Viveka*, is apparently referred to by Hemādri, Caṇḍeśvara, Mādhavācārya, Viśveśvara, etc.

For facility of reference the smaller sections will be dealt with alphabetically arranged.

(1) *The Ekādaśī-viveka.*

The eleventh lunar day was deemed important on account of the fast enjoined on that day both for widows and for the Vaiṣṇavas. I have seen only a fragment of the work, the last folio (fol. 8*a*) wherein are quoted verses from the *Śiva-rahasya* and the *viṣṇudharma*.[2] It is quoted in Govindānanda's *Artha-kaumudi*, a commentary on Śrīnivāsa's *Śuddhi-dīpikā* (iv. 5).

(2) *The Tithi-viveka.*

It deals generally with the tithis or lunar days, the eleventh having been specially dealt with in (1). It seems identical with the MSS. named *Tithi-dvaita-prakaraṇam.* It is

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[1] Srerampore ed. II, 210:—न वाक्यस्य अत एव पितृदयितापरिशिष्टप्रकाश-परिशिष्टदीपकलिकाप्रभृतिषु मन्त्राभिधानपूर्व्वकवाक्येन वृषोत्सर्ग इत्युक्तं।

[2] Sanskrit College MS., II. 563R. The final colophon runs:—इति श्रीमहामहोपाध्यायशूलपाणिविरचितएकादशीविवेकः समाप्तः॥ Country white paper, $13'' \times 2\frac{3}{10}''$, 4 lines. Letters Bengali, small.

quoted in his own *Vrata-kāla-viveka*; and it quotes his *Śrāddha-viveka* (fol. 2*a*), the *samvatsara-pradīpa* once, Jikana twice and the *Smṛti-samuccaya* once. It was commented upon by Śrīnātha Ācārya-cuṛāmaṇi in the *Tātparya-dīpikā.*

(3) *The Dattaka-viveka.*

A small treatise on adoption and its rules. It is *not* included in Bharata Śiromani's *Dattaka-śiromaṇi*, as said by Mittra.

(4) *The Durg-otsava-viveka.*

It deals with Durgā worship both in autumn (Āsvina or September-October) when it becomes a great national festival, and again in the spring (Phālguṇa or March) under the name of Vāsantī.

Besides the Purāṇas (the *Kālikā*, the *Devī*, and the *Bhaviṣya* frequently) and the Smṛtikāra sages, it quotes the

Kāmarūpīya-nibandha (once).	*Jyotiṣa* (several times).
Kāla-kaumudī (twice).	*Jyotiṣ-ārṇava* (once).
Kāla-viveka (thrice).	Bālaka (twice).
Kāla-Mādhavīya (once).	*Varṣa-kṛtya* (once).
Kāl-ādarśa (once).	Vasanta-rāja (once).
Gavākṣa-tantra (once).	*Śāradā* [*-tilaka*] (once).
Jikana (once).	Śrīkara Miśra (7 times).
Jīmūtavāhana (twice, from the *Kālaviveka*).	*Samvatsara-pradīpa* (once) and the *smṛtisāra* (once).

It is one of the latest productions of Śūlapāṇi, as it quotes no less than five of his own works, the *Durg-otsava-prayoga-viveka*, the *Pratiṣṭhā-v*o, the *Prāyaścitta-v*o, the [*Dola-*] *yātrā-v*o, and the *Śuddhi-v*o.

(5) *The Dola-yātrā-viveka.*

It describes the swinging festival of Lord Jagannātha in the spring (March). It quotes the astrological *Bhuja-bala-bhīma* ascribed to Bhojarāja and refers to the *Puruṣottama-māhātmya* in the 29th adhyāya of the *Skanda-purāṇa*. It has been quoted in the *Durg-otsava-viveka* (No. 4).

(6) *The Pratiṣṭhā-viveka.*

It treats of the consecration of idols, etc. It is quoted in two of his works, the *Durg-otsava-v*° (No. 4) and the *Vrata-kāla-v*° (No. 9).[1]

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[1] The MS. Ind. Govt. No. 114 is entered as *Pratiṣṭhā-v*° according to the final colophon, but it is really a MS. of the *Vrata-kāla-v*°, as the introduction and the text show.

(7) *The Prāyascitta-viveka.*

A standard work on expiations which has been printed. It quotes the

Kalpa-taru (9).
Kalpa-taru-kāra (3).
Govindarāja (1).
Jikana (frequently, some 21 times).
Bhojadeva (6).
Dharma-pradīpa (9).
Bhavadeva (10).
Viśvarūpa (2).
Śrīkara (1).

It is quoted in his *Durg-otsava-v°* (No. 4), and is commented upon by Govindānanda (in the *Tattv-ārtha-kaumudī*) and by Udīcya Rāmakṛṣṇa (in the *Prāyaścitta-kaumudī*). It is quoted frequently by Raghunandana in his Malamāsa, Dāya-bhāga, Śuddhi, Prāyaścitta, Vivāha, Tithi, Durg-otsava, Ekādaśī, Vrata, and Āhnika Tattvas. According to Govindānanda Śulapāṇi composed his *Prāyścitta-v°* after the *Śrāddha-v°*.[1]

(8) *The Rāsa-yātrā-viveka.*

It treats of the Rāsa festival of Jagannātha on the Kārttika full moon, in autumn (November).

(9) *The Vrata-kāla-viveka.*

It discusses the times of vratas or optional fasts. It quotes the

Kalpataru-kāra (once).
Kāmadhenu (once).
Kāmadhenu-kāra (once).
Kṛtya-kāmadhenu (once).
Bhuja-bala-bhīma (once).
Mitākṣarā (once).
and his own *Pratiṣṭhā-viveka* (once).

(10) *The Śuddhi-viveka.*

No MS. yet found. It is named in his own *Durg-otsava-v°* (No. 4), and in the *Śuddhi-kaumudī* of Govindānanda (thrice).

(11) *The Śrāddha-viveka.*

The most famous of his works, and printed. It treats philosophically the subject of funeral ceremonies with their rules. It quotes the

Kalpa-taru (17 times).
Kalpa-taru-kāra (once).
Kāmadhenu-kāra (once).
Govindarāja (once).
Jikana (4).
Jyotiḥ-Parāśara (2).
Bhojadeva (1).
Mahārṇava-prakāśā-kāra (1).
Medhātithi (1).
Śaṅkhadhara (1).
Smṛti-mañjarī-kāra (1).
Halāyudha (13).

[1] Sanskrit College MS. II, 193, fol. 2*a*, प्रसिद्धः श्रीशूलपाणिः प्रथमा श्राद्धविवेकादिग्रन्थकरणानन्तरं अत्र ग्रन्थे प्रायश्चित्तस्य विवेकं विवेचनं विदां कर्तुं प्रारब्धः ।

It is mentioned in his own *Tithi-v°* (No. 2) and the *Durg-otsava-v°* (No. 4). It was quoted in the *Śrāddha-cintāmaṇi* of Vācaspati Miśra (18 times), as the *Gauṛīya Śrāddha-viveka* in the *Śrāddha-viveka* of Rudradhara (once), frequently by Govindānanda (in his *Śuddhi°* and *Śrāddha-kaumudī*) and by Raghunandana (in his Malamāsa, Dāya-bhāga, Saṁskāra, Śuddhi, Vivāha, Tithi, Ekādaśī, Yajur-vṛṣ-otsarga, Divya, Āhnika, Sāma-Śrāddha). On account of its subtle arguments it was commented upon several times, by Śrīnātha Ācārya-cuṛāmaṇi, Acyuta Chakravarttī, Govindānanda (*Śrāddha-viveka-kaumudī*), Jagadīśa (*Śrāddha-viveka-bhāv-ārtha-dīpa*), and Śrīkṛṣṇa Tarkālaṅkāra.

(12) *The Saṁkrānti-viveka.*

It deals with the Saṁkrāntis or the times of sun's entrance into the zodiacal signs. It quotes the *Nyāya-dīpikā* of the philosopher Vācaspati Miśra, the *Kalpa-taru*, the *Pārijāta*, the *Ratnākara* and the *Kṛtya-cintāmaṇi* of Caṇḍeśvara.

(13) *The Sambandha-viveka.*

It discusses the relationship (*sambandha*) permissible or forbidden for marriage. The quotations are from the Purāṇas and Smṛti-kāra sages, but the subject-matter and some of the quotations such as Manu's in the beginning remind one of the *Saṁbandha-viveka* of Bhavadeva Bhaṭṭa.

This completes the authentic list of Śūlapāṇi's works. According to Aufrecht Śūlapāṇi wrote also the astrological *Saṁvatsara-pradīpa*,[1] a statement for which I find no ground. Śūlapāṇi himself had quoted this work in his *Tithi-v°* (No. 2), and *Durg-otsava-v°* (No. 4), and gave no hint that this was his own. Both Govindānanda and Raghunandana quoted the *Saṁvatsara-pradīpa* frequently, but nowhere spoke of it as Śūlapāṇi's. Paṇḍit Haraprasād Shastri has described a MS. of the *Saṁvatsara-pradīpa*,[2] but the extracts given by him nowhere mentions the name of Śūlapāṇi.

In a North-Western Province Report one *Samaya-vidhāna* is also attributed to Śūlapāni.

B. HIS FAMILY.

Śūlapāṇi does not give the slightest information about himself or his family. In the colophons he is given the title of *Upādhyāya* or *Mahāmahopādhyāya*, titles mentioned also by

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[1] *Catalogos catalogorum*, Vol. I, p. 681.
[2] H. P. Shastri's *Notices*, Vol. I, p. 390, No. 388.

Raghunandana.[1] In the final colophon of one MS. of the *Prāyaścitta-v°* (Mittra, 415) he is given the title *Bhaṭṭa;* and in some other MSS. of the *Durg-otsava-v°* and in a MS. of the *Dīpa-kalikā* (Mittra, 1147) the full title *Bhaṭṭācārya* is given to him in the final colophons.

In these final colophons Śūlapāṇi is often called *Sāhuṛīyān* (*Sāhuṛiyā*, once *Gāṇḍubhiyān* wrongly), from his *kula* or family name. *Sāhuṛīyān* is said to have survived to the present day as a subsection of the Rāṛhīya Brāhmaṇas. Though himself silent about his country, the Maithilis regarded him as a Gauṛiya, and Rudradhara distinguished his *Śrāddha-v°* from his own work of the same name by calling the former *Gauṛīya*.

C. HIS TIME.

Over Śūlapāṇi's time there hangs the usual haze of ideas. According to Rājendralal Mittra he lived in the middle of the twelfth century and was a judge in the Court of Lakṣmaṇasena of Bengal.[2] Paṇḍit Haraprasād Shastri says:—"According to the settlement of the Brahmanic hierarchy made by Vallāla Sena, the family which hailed from Sāhuḍi were degraded to a very low position, but the great ancient law-giver of Bengal. Mahāmahopādhyāya Śūlapāṇi, was proud to call himself a Sāhuḍiyāna, hence he may be said to have belonged to a period anterior to Vallāla Sena, that is the eleventh century."[3] According to Professor Jolly,[4] Śūlapāṇi was much later, and this opinion is accepted by Professor Eggeling.

The lower limit is fixed by the commentary of Śrīnātha Ācārya-cuṛāmaṇi on the *Śrāddha-viveka*, which Śrīnātha wrote according to his father's instructions. This commentary is among Śrīnātha's earliest works and with his commentary on the *Tithi-v°* cannot be later than the beginning of the sixteenth century, as I will show later on. At least half a century would have intervened between the commentaries and the originals. So the *Śrāddha-v°* and the *Tithi-v°* cannot be later than the middle of the fifteenth century.

This view is supported by the mention of the *Śrāddha-v°* in the *Śrāddha-cintāmaṇi* of Vācaspati Miśra.[5] Vācaspati Miśra's time is as yet unascertained. But as he flourished during the reigns of the Tirhut kings Bhairavendra and (his son) Rāmabhadra,

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[1] The *Aṣṭāviṁśati-tattva*, Srerampore ed.; for *Upādhyāya*, see its i, pp. 178, 518, ii, 98, 127; for *Mahāmahopādhyāya*, see i, pp. 307, 311. 325 (2), 457, 543, ii, 60, 61, 64(2), 109, 111, 165, 216, 220.

[2] Mittra, *Notices*, III, 104, VI, 129, 205, 209.

[3] Shastri, *Notices*, Vol. I (1900) preface, p. x.

[4] J. Jolly's *Outlines of Hindu Law*, Tagore Law Lectures, 1883, p. 14; *Ind. Off. Cat.*, III, 371.

[5] Benares Ed. (Śk. 1814), pp. 2, 4, 8, 12, 25, 44, 55, 58, 101, 108, 134, 138, 139, 141, 149, 157, 163, 177.

his time falls roughly in the third quarter of the fifteenth century. The *Śrāddha-v°* having been quoted by him as an authority no less than eighteen times, Śūlapāṇi would be considerably older, and could not have flourished later than the first quarter of the same century.

The upper limit is fixed by the mention of Caṇḍeśvara's works the *Kṛtya-cintāmaṇi* and the *Ratnākara* in Śulapāṇi's *Saṁkrānti-viveka*, and of the *Kāla-Mādhavīya* in the *Durg-otsava-viveka.*[1] Caṇḍeśvara's time is fairly well known as falling in the first and second quarters of the fourteenth century, he having performed the Tulā-puruṣa gift on the banks of the Vāgvatī river in Śaka 1236 (1314 A.D.).[2] The *Kāla-Mādhavīya* or the *Kāla-nirṇaya* of Mādhavācārya is still later. Mādhavācārya was the *kula-guru-mantrī* or the priestly minister of *Bukkaṇa-kṣmā-pati*, the king Bukka I of Vijayanagara, whose inscriptions range between Śaka 1276 and 1290 (1354-1368 A.D.).[3] The *Kāla-nirṇaya* was composed as a supplement to the *Parāśara-Mādhavīya*,[4] and therefore late in Bukka's reign, say about 1365 A.D. As some time must have elapsed before the work could have become known in Bengal, we arrive at the upper limit of 1390 A.D. The *Durg-otsava-viveka*, in which the Kāla-Madhavīya has been quoted, is a late production of Śūlapāṇi. So considering all these facts we shall not be far from truth if we hold that Śūlapāṇi flourished in the beginning of the fifteenth century A.D., if not earlier.

I now conclude with a few words about the sequence in Śūlapāṇi's works. The commentary *Dīpa-kalikā* must have been among his earliest, for commentaries as a rule preceded original compositions, and the young minds were more attracted by a great name. The *Śrāddha-v°*, followed by the *Prāyaścitta-v°*. and the *Śuddhi-v°* appears to belong to his mature age, and is marked by subtle discoussions and close reasonings. The

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[1] The *Saṁkrānti-v°*, Benares ed. (Śk. 1814). a verse quoted from the *Kṛtya-cintāmaṇi* (p. 152), and एवमेव कल्पतरु-रत्नाकर पारिजातादयः (p. 156). The *Durg-otsava-v°*, Sans. Coll. MS. II, 335. इति कालमाधवीयधृतकाठक-वचनाच्च (fol. 3*b*).

[2] The *Vivāda-ratnākara*, Bib. Ind. Ed., p. 670-1 :—

रसगुणभुजचन्द्रैः सम्मिते शाकवर्षे
सहसि धवलपक्षे वागवतीसिन्धुतीरे ।
अदित तुलितमुच्चैरात्मना स्वर्णराशिं
निधिरखिलगुणानामुत्तरः सोमनाथः ॥ [४ ॥]

[3] For the latest inscription of Bukkarāya I dated Śaka 1290. see *Ind. Ant.*, Vol. XIV, p. 233.

[4] The *Kāla-nirṇaya*, Bib. Ind. ed., p. 2 :—

व्याख्याय माधवाचार्य्यो धर्म्मान् पाराशरान् तथा ।
तदनुष्ठानकालस्य निर्णयं वक्तुमुद्यते ॥ ४ ॥

Tithi-v°, the *Durg-otsava-v°* and *Saṅkrānti-v°* seem from the references to belong to his later age.

The conclusion arrived at about Śūlapāṇi's time puts him among the earliest stars of the Hindu Revival. He reorganized the Bengal School of Smṛti, just as Bṛhaspati, surnamed Rāya-mukuṭa, set the ball of literary composition arolling by his lexicon and literary commentaries.

IV. Śrīnātha Ācāryacuṛāmaṇi.

Śrīnātha's name is almost unknown nowadays. Yet he deserves to be better known in Bengal for various reasons. Firstly, he was the author of several notable Smṛti works, both commentaries and original treatises. Secondly, he belongs to a learned family, his father Śrīkara and his son Rāmabhadra being as learned as he, thus furnishing a good illustration of the principles of heredity. Thirdly, he was the teacher of the famous Raghunandana Bhaṭṭāchārya, a distinction that alone should keep his name out of the gulf of oblivion. The present article is intended to give a brief account of the whole family, though the heading is put under Śrīnātha, the most notable member thereof.

A. ŚRĪKARA ĀCĀRYA.

He should be distinguished from the Maithila Śrīkara Ācārya who wrote the commentary on the lexicon *Amara-koṣa*, named *Vyākhy-āmṛta*, and who according to the colophon of a Nepal MS. was an officer of the Mithilā king Rāmasiṁhadeva.[1]

Śrīkara was learned in Smṛti. His son noted in the introductory verse to his commentary on the *Srāddha-viveka* that he had written it according to the instructions of his father, *janak-oktā*. In the MSS of one *Dāya-bhāga-vinirṇaya*, or the ascertainment of division of property on inheritance, the author

[1] For the Maithili, see R. Mittra, *Notices*, VIII, p. 199 (No. 2751), final colophon, इति महामहोपाध्याय श्रीश्रीकराचार्य्यविरचिते व्याख्यामृते मनुष्यवर्गविवरणं । ; H. P. Shastri, *Notices of Nepal* MSS., No. 802, p. 23:— इति मिथिलामहीमहेन्द्रसमस्तप्रक्रियाविराजमान श्रीम + + + वरलब्धप्रसादपुण्यावलोकमहाराजाधिराजश्रीमद्रामसिंहदेवानां सदस्य महामहोपाध्याय श्रीश्रीकरविरचितायाममरकोषविवरणटीकायां व्याख्यामृताभिधानायां भूकाण्डे + + विवरणं समाप्तम् । See also the following MS. No. 803, the *Āmarakoṣa-ṭikā*. The remark on it श्रीकरेण रायमुकुटेन च रचिता, apparently means that it consists of incomplete MSS. of Rāya-Mukuṭa's and of Śrīkara's, as in No. 802, and not that this commentary was written jointly by the two, as some have imagined. In fact between Rāya-Mukuṭa's time and Rāmasiṁhadeva's time there was at least an interval of three decades, and possibly four. Rāya-Mukuṭa wrote his commentary complete in three Kāṇḍas, and therefore no supplement to it was needed.

is said to be Śrīkara Śarmmā in the introductory verse; but in the final colophons and headings, the work is ascribed sometimes to Śrīkara Ācārya, sometimes to Śrīkara Bhaṭṭācārya, and sometimes to Gopāla Nyāyapancānana. In the context there is an allusion to a different reading by *Smārtāḥ*, which if referring to Raghunandana Bhaṭṭācārya would make the work not of this Śrīkara. The word may, however, be taken in the ordinary sense of law-scholars. Then there would be nothing in the context to prevent the work being attributed to the present Śrīkara Ācārya. This work is based on the *Dāya-bhāga* of Jīmūta-vāhana supplemented by works of the Maithilis, specially the work of Vācaspati Miśra (*Vivāda-cintāmaṇi*). In one passage about wife's property the opinion of *Miśrāḥ*, i.e. of Vācaspati Miśra, is preferred to that of the *Dāya-bhāga-kṛt*[1]; and in several cases the opinion of both the *Dāyā-bhāga* and of the *Miśrāḥ* are quoted side by side. Śrīkara thus appears to have been considerably influenced by the leading paṇḍit of that time, Vācaspati Miśra. Śūlapāṇi had not treated of the Vyavāhara and the Vivāda sections of Smṛti. This omission of Śūlapāṇi might have influenced Śrīkara in selecting the subject of Dāya-bhāga, a subject which had come to be well studied in the Hindu courts of Mithilā. Among its few later quotations are the

Dāya-bhāga (13).
Dāya-bhāga-kāra (2).
Dikṣita (1).
Madana-pārijātā (1).
Miśrāḥ (13).
Medhātithi (1).
Maithila (3).
Vācaspati Miśra (1).
Smārtāḥ (1).

B. ŚRĪNĀTH-ĀCĀRYA-CUḌĀMAṆI.

Śrīnātha wrote a considerable number of works, which, for facility of treatment, may be grouped under four subheads:—

i. Four commentaries, the *Sāra-mañjarī* (a commentary on the *Candoga-pariṣiṣṭa-prakāśa* of Nārāyaṇa), the *Tātparya-dīpikā* (a commentary on the *Tithi-viveka* of Śūlapāṇi), the *Śrāddha-viveka-vyākhyā* (a commentary on Śūlapāṇi's) and the *Dāya-bhāga-ṭippaṇi* (a commentary on Jīmūtavāhana's).

ii. Three works ending in the word *arṇava* or sea, the *Vivek-ārṇava*, the *Kṛtya-tattv-ārṇava* and the *Śuddhi-tattv-ārṇava*.

[1] As. Soc. MS. (4th) in I. B. 26, p. 20 :—पत्यादत्तेऽपि तदनुज्ञया परिचितोऽलङ्कारस्तावतैव भार्य्यायाः स्वीयो भवतीति मेधातिथिरिति मिश्राः । अथ दायभागकृन्मतानुसारिणामस्वरसः, सुधिभिर्विभाव्य ॥

iii. Three works ending in the word *candrikā* or moon-light, the *Ācāra-candrikā*, the *Śrāddha-candrikā*, the *Dāna-candrikā.*

iv. Two works ending in the word *dīpikā* or moon-shine, the *Gūḍha-dīpikā*, and the *Śrāddha-dīpikā.*

v. Three works ending in the word *Viveka* or discussion, the *Durg-otsava-viveka*, the *Prāyaścitta-viveka* and the *Śuddhi-viveka*.

I. The Commentaries.

These call for little remarks. In the *Dāya-bhāga-ṭippaṇi* besides occasional references to *Prakāśa-kṛt*, the only late reference I have found is to Kullūka, whose opinion he criticizes.[1] Śrīnātha's commentary was in turn much criticized by Acyutānanda Cakravarttī in his commentary, the *Dāya-bhāga-siddhānta-kumuda-candrikā* (see the Appendix A).[2]

Śrīnātha's commentary on the well-known *Śrāddha-viveka* of Śūlapāni[3] is fuller of late references, among which may be mentioned the—

Kalpa-taru (10 times).
Kāmadhenu (2).
Cintāmaṇi-kṛt (1).
Jikana (1).
Jīmūta-vāhana (2).
Tithi-viveka (1).
Dāya-bhāga-kṛt (2).
Dharmeśvera (4).
Nārāyan-opādhyāya (5).
Pariśiṣṭa-prakāśa (6).
Pāraskara-bhāṣya-kāra (2).
Bhīma-parākrama (1).
Madana-pārijāta (3).
Mahārṇava-prakāśa (3).
Mitākṣarā (1).
Varddhamānopādhyāya (3).
Śrāddha-kalpa (4).
Śrāddtha-bhāṣya-kāra (2).

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[1] Bharat Śiromani's ed. of the *Dāya-bhāga*, p. 80 (I. 45):—इत्थं समएवभागो न विंशोद्धारादिरिति कुल्लूकमतमपास्तं। This criticism fixes the lower limit of Kullūka Bhaṭṭa, the commentator of *Manu-saṁhitā*, as older than the beginning of the sixteenth century. How much older he was there is at present no means of knowing. But his very scanty mention by Śrīnātha, coupled with his non-mention in the works of Śūlāpani. and other older writers, would seem to put him in the fifteenth century, probably contemporaneous with or a little later than Śūlāpāṇi. Kullūka and his commentary are very often quoted in Varddhamāna's *Daṇḍa-viveka* (75 times), where also Nārāyaṇa Sarvajña is also frequently quoted. *Daṇḍaviveka's* time falls in the fourth quarter of the fifteenth century, and therefore Kullūka's time cannot be later than the first quarter of the same century.

[2] See Bharat Śiromaṇi's ed., pp. 8 (I. 4), 22 (I. 13), 37 (I. 29), 54 (II. 4), 87 (II. 51), 89 (II. 53), 104 (II. 79), with such remarks as *tan-na*, *°matam-apāstaṁ*, *°likhanam-aparyālocana-vijṛmbhitam-eva*, *ayuktaṁ*, *tad-asat.* For Acyutānanda Cakravarttī, see the Appendix A.

[3] Sans. Coll. MS. II. 433. The page no. on its last folio is 84, but as the page nos. on folios 40 to 49 are continued on the next ten folios, the real no. of folios would be 94. It is written in two hands, one smaller and the other a little larger.

Śrīdatta Mahāmahopādhyāya (3).
Samaya-prakāśa-kāra (5).
Saṁvatsara-pradīpa (1).
Śāradā-tilaka (1).
Hari-śarmmā (3).
Hāralatā-kāra (3).

Besides quoting himself by his title (Ācārya-cuṛāmaṇi) once, and his own commentary *Sāra-mañjarī* thrice.

ii. *The Arṇava group.*

No MS. of the *vivek-ārṇava* has yet been found. But it is quoted in the author's own works, the *Kṛtya-tattv-ārṇava*, the *Dāna-candrikā* and the *S'rāddha-dīpikā.*

Only one MS of the *S'uddhi-tattv-ārṇava* has been yet found.[1] It deals with purification due to aśauca, contamination, etc. It purports to be based on the *Kāmadhenu*, the *Kalpa-taṛu*, the *Mahārṇava*, Hemādri, the *Mitākṣarā*, the *Hāralatā*, the *Pārijāta* and others. It refers occasionally to Gauṛas. It quotes often the customs of the Maithilas (more than seventeen times), and has several times criticized them with such remarks as *tan-na yuktaṁ*, *tac-cintyaṁ*, *matam-apāstaṁ*, *tan-mandaṁ*. Besides quoting the Maithilis in general, it quotes by name *Rudr-opādhyāya*, and the *Śuddhi-cintāmaṇi* of Vācaspati Miśra. Among other later names, it quotes the *Kṛtya-viveka*, and the author's own *Ācāra-candrikā* and *S'rāddha-dīpikā*. It would thus appear to be one of his later works. It is quoted by Raghunandana in the S'uddhi Tattva.

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1 This unique MS. (Ind. Govt. No. 3689) not having been yet described, is described below briefly :—

Palm leaf, 15½″ × 1⅝″. Folios. number given 99, but the last two folios have no number. and the number 64 is given on two folios, so in all 102 folios. The two folios of the beginning gone. but the first folio is copied on a folio numbered 41. and put after the folio 40. The introductory verse 2 in it runs thus :—

विलोक्य मन्वादिमुनीन्द्रसंहिता-
स्तथा निबन्धान् रचितान् महाजनैः ।
आचार्य्यचूडामणिना वितन्यते
मा (?) दृविदां सूतकशुद्धिनिर्णयः ॥ [२ ॥]

इह खलु परम श्रीमो (?) लकहता । कामधेनुकल्पतरुमहार्णवहेमाद्रिमिताक्षरा-हारलतापारिजातादयः । The final colophon runs thus :—इति महामहोपाध्यायश्रीमत्श्रीनाथाचार्य्यचूडामणिरचितः शुद्धितत्त्वार्णवः समाप्तः ॥ * ॥

शाकेवस्वाग्निघटिते वाणचन्द्रसमन्विते ।
शुद्धितत्त्वार्णवोत्लेखि श्रीरमाकान्तशर्म्मणा ॥

The condition of the MS. is old and worm-eaten with some of the leaves broken, and in others the edges gone.

The MS. was copied in Śaka 1538 or 1616 A. D., and is thus one of the oldest palm-leaf MSS. found in Bengal. Palm leaves should not be confounded with corypha leaves which were used in older manuscripts.

The *Kṛtya-tattv-ārṇava* or the *Kṛtya-kāla-vinirṇaya* deals with fasts and periodical festivals. It was quoted several times by Raghunandana in the Śuddhi, Prāyaścitta, Vivāha, tithi, Durg-otsava and Āhnika Tattvas, and also by Kamalākara.

It quotes several later works and authors, e.g., the

Gaṅgā-vāky-avalī (1).
Jīmūtavāhana (1).
Tithi-viveka (1).
Dāna-sāgara (1).
Dhanañjaya (3).
Nirṇaya-prakaraṇa (1).
Pārijāta (1).
Ballālasenadeva (1).
Bhavadeva (1).
Bhāguri (1).
Bhīma-parākrama.
Bhojadeva (2).
Madana-pārijāta (10).
Mādhavīya (1).
Ratnākara.
Rāja-mārttaṇḍa.
Lakṣmīdhara (1).
Śaṅkhadhara (1).
Samaya-prakāśa (1).
Samvatsara-pradīpa (7).
Smṛti-mahārṇava (2).
Smṛti-samuccaya (1).
Hemādri (5).

And quotes in addition his own *Gūḍha-dīpikā* and *Vivek-ārṇava.*

It is interesting to find that while referring to the *Dāna-sāgara* under the head "years," the commentary mentions the fact that the *Dāna-sāgara* was composed by Ballālasenadeva in Śaka 1091. So the tradition of the *Dāna-sāgara's* composition in 1169 A.D. must be older than the beginning of the sixteenth century at least.[1] On the authorship of the *Dāna-sāgara*, I might note here a curious remark of Raghunandana in the Ekādasītattva. He points out that in the *Dāna-sāgara* Aniruddha Bhaṭṭa considered the *Viṣṇu-rahasya* (and the *Śiva-rahasya*) as not of a Ṛṣi or sage, but simply *loka-prasiddham* or well-known among the people (as compilations or *saṅgrahas*).[2] The direct connexion of Aniruddha Bhaṭṭa with the *Dāna-sāgara* implies that Raghunandana considered Ballālasenadeva only as the nominal author, and Aniruddha Bhaṭṭa as its real author.

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[1] As. Soc. MS. I. F. 45. p. 4:—वत्सरश्च सम्वत्सर परिवत्सर उदां-वत्सरानुवत्सरभेदात् पञ्चविधा, तदुक्तं निखिलभूपचक्रतिलकश्रीमद्बल्लालसेनदेवेन। पूर्णे शशिनवदशमितशकवर्षे १०९० (*sic* १) दानसागरो [र] चितः रवि-समया परिमिताभूता दानसागरस्याख्या क्रमशः संपरीदामुदाश्चावतसराः पञ्चेति।

[2] *Aṣṭ. tattva*, Sr. ed., vol. ii, p. 24:—विष्णुरहस्यनार्षत्वस्य दानसागरेऽनिरुद्धभट्टेनाभिहितत्वाच्च। यथा लोकप्रसिद्धमेतद्विष्णुरहस्यं शिवरहस्यञ्च, द्वयमिह न परिगृहीतं संग्रहरूपञ्च यत्नतोऽवधार्य्यंति। *cf.* the *Dāna-sāgara*, introductory verse 60:—

लोके प्रसिद्धमेतद्विष्णुरहस्यं च शिवरहस्यं च।
द्वयमिह न परिगृहीतं संग्रहरूपत्वमवधार्य्य ॥ ६० ॥

iii. The Candrikā Group.

The *Ācāra-candrikā* deals first with the duties of Śūdras, and then describes the Āhnika or the daily rites of the twice-born.[1] It is mentioned in his *Dāna-candrikā*, *Śrāddha-dipikā*, and *Śuddhi-tattv-ārṇava*, and is quoted by Raghunandana in the Āhnika-tattva.

The *Śrāddha-candrikā* is probably the most important work of Śrīnātha. But the only MS. of it I have seen is in palm leaf, old, crumbling and worm-eaten. In the introductory verse No. 2 it is ascribed simply to an Ācārya-cuṛāmaṇi, but in the final colophon it is said to have been composed by Śrīnāthācārya-cuṛāmaṇi, son of Śrīkar-ācārya.[2] So far as I could see, besides the Purāṇas it quotes the *Śrāddha-viveka-kāra* (fol. 35a). It purports to be a manual of funeral ceremonies. It is mentioned in his *Śrāddha-dīpikā* and is quoted by Raghunandana in the Yajuḥ-śrāddha-tattva as his *Guru-caraṇāḥ*.

The *Dāna-candrikā* treats of religious gifts. The only MS. of it I have seen is incomplete.[3] Therein are quoted the *Ācāra-ratnākara* (1), the *Kalpa-taru* (1), the *Kāma-dhenu* (1), the *Kāla-viveka* (copied wrongly as *Karma-viveke Jīmūta-vāhanena*), Jīmūta vāhana (1), Nārayaṇ-opādhyāya (1), the *Pārijāta* (1), Bhavadeva (1), the *Ratnākara* (1), Mahāmahopādhyāya Śrīdatta (1), Harināth-opādhyāya (1), besides his own *Ācāra-candrikā* and *Vivek-ārṇava*.

iv. The Dīpikā Group.

No MS. of the *Guḍha-dīpikā* yet found, but it is mentioned in the author's *Kṛtya-tattv-ārṇava*.[4]

The *Śraddha-dīpikā* seems to be a continuation of the *Śrāddha-candrikā* and is quoted in the *Śuddhi-tattv-ārṇava* and by Raghunandana in his Yajuḥ-Śrāddha-tattva. It gives the various *prayogas* of the rites of the funeral ceremony among the Chāndogas. It quotes—

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[1] See *Ind. Off. Cat.*, III, p. 524, MS. No. 1648, copied in Śaka 1710 or 1788 A.D.

[2] Ind. Govt. MS. No. 3683, palmleaf MS., 14″ × 1¾″, fols. 84: 4-5, occasionally 3, lines to a page. Fol. 1a:—

संहिताः संग्रहान् सर्वान् विलोक्य श्राद्धपद्धतिः ।
आचार्य्यचूड़ामणिना सोपपत्तिर्निबध्यते ॥ [२ ॥]

Its final colophon in fol. 84b runs:—इति महामहोपाध्यायश्रीमत्-श्रीकराचार्य्यात्मजश्रीमत्श्रीनाथाचार्य्यचूडामणिकृता श्राद्धचन्द्रिका समाप्ता ॥ This MS. is old, worm-eaten and crumbling, and requires careful handling.

[3] Sans. Coll. MS. II, 563, fols. 1a-19b.

[4] As. Soc. MS. I. F. 45, p. 61:—इति विश्वरत्नाकरीयगूढदीपिकायां सिद्धान्तादर्शे चानुसन्धेय इति ।

Aniruddha (2).
Kalpa-taru (4).
Kāma-dhenu (1).
Dhāreśvara (1).
Pārijāta (1).
Pitṛ-dayitā (1).
Prakāśa-kāra (1).
Mitākṣarā (3).
Miśrāḥ (3).
Rātnākara (1).
Viśvarūpa (1).
Śrīdatta (7).
Hari Śarmmā (1).

Besides these, it mentions the author's *Ācāra-candrikā* and *Vivekārṇava*.

The *Pitṛ-dayitā*, a work on *Śrāddha*, often quoted by Raghunandana is ascribed herein to Aniruddha.[1]

v. The Viveka Group.

These seem to be more or less manuals. Three have been as yet brought to light. The *Śuddhi-viveka* quotes Śūlapāṇi at the end, and the *Durg-otsava-viveka* is based on the same section in Jīmūtavāhana's[2] *kāla-viveka*. The Durgā festival had been already dealt with by Śrīnātha in his *Kṛtya-tattv-ārṇava*[3]; but the importance of the subject apparently necessitated a separate fuller treatment. It should be distinguished from a work of the same name by Śulapāṇi.

C. RĀMABHADRA NYĀYĀLAṄKĀRA BHAṬṬĀCĀRYA

He wrote :—

(*i*) The *Dāya-bhāga-vivṛti* (or °*dīpikā* in the final verse).[4] In this he follows largely the commentary of his

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[1] Sans. Coll. MS. II, 4, 25, fol. 28a, इति पितृदयितायामनिरुद्धेन लिखितं fol. 27b, इति गौड़पद्धतिकृतोऽनिरुद्धस्य मतमपास्तं ।

[2] For the *Suddhi-viveka*, see R. Mittra, *Notices*, VIII, 273, No. 2831; *Prāyaścitta-v°*, Do., VIII, 272, No. 2830: for the *Durg-otsava-v°*, H. Shastri, *Notices*, Vol. III, p. 92, No. 143.

[3] As. Soc. MS. I, F. 45, pp. 93-103.

[4] Bharat Śiromaṇi's ed., p. 1, the introductory verse—

आलोच्य तातनिर्म्मितनिबन्धमाराध्य विश्वेश्वरम् ।
आर्य्याचार्य्यस्तनुते विवृतिमिमां दायभागस्य ॥ [१ ॥]

p. 359 :—श्रीरामभद्ररचितं पाणौ संस्थाप्य दीपिकामेतां ।
जीमूतवाहनकवेर्गभीरार्थं विदन्तु विद्वांसः ॥ [१ ॥]

इति श्रीमहामहोपाध्यायश्रीनाथाचार्य्यचूड़ामणितनुजश्रीरामभद्रन्यायालङ्कारभट्टाचार्य्यविरचिता दायभागटीका समाप्ता ॥

Under the *Dāya-bhāga*, I. 55, p. 89, Acyuta criticised Cuṛāmaṇi's remarks saying किञ्चेति चूड़ामणिस्तदसत् . On this Rāmabhadra says :—
तस्मादाम्नयात्मजभावं विवेचितं नाम साम्येन जीमूतवाहनमतं न दूषितं तातपादेन ।

father Śrīnātha, referring to him often as *guravaḥ*, and in some instances defending him against attacks of other commentators, such as Acyutānanda Cakravarttī.

(*ti*) The *Smṛti-tattva-vinirṇaya* or *vyavasthā-saṅgraha*, a collection of rules on various smṛti matters, such as tithi, dāna, śrāddha, prāyaścitta, śuddhi, udvāha.[1] Here in the final colophon he calls himself *Navadvīpa-nivāsi°* or resident of Navadvīpa town.

He should be distinguished from Rāmabhadra Nyāyālaṅkāra (without the title Bhaṭṭācārya) who wrote a *kārikā* or a versified set of rules on the Śuddhitattva (of Raghunandana ?). Whether he is the author of the *Vidvan-modini*, a commentary on Kālidāsa's *Raghuvaṁśa*, there is not sufficient data at present to decide, beyond the fact that the names are the same.[2]

Rāmabhadra had several sons, some of whom were learned. The second son, Rāmeśvara, wrote the *Tantra-pramoda*, and the sixth son, Raghūmaṇi, wrote the *Āgama-sāra*, both works on the Tantra.[3] In the introductory verses they praise their father (living on the bank of the Ganges) rather extravagantly.

D. THEIR TIMES.

Śrīkara quotes Vācaspati Miśra as an authority and therefore must be later than the third quarter of the fifteenth century. As father of Śrinātha he cannot be later than the end of the fifteenth century. Thus Śrīkara's time falls roughly in the fourth quarter of the same century.

Śrīnātha's posterior limit is fixed to some extent by the date of copying of the oldest MS known, viz., the *Tithi-viveka-ṭīkā*, the *Tātparya-dīpikā*. The copyist, whose name is not given but who calls Śrīnāthācārya his teacher (*guruvara*), copied the MS. in *Śāke varga-try-aditi-(abdhi)rajanīnāthair-mite Mīnabhe*, in Śaka 1434 or 1512-3 A.D.[4] The original work must have been therefore composed some time before. Thus

[1] *Ind. Off. Cat.*, III. 485-6, MSS. Nos. 1567-69.

[2] For the *Śuddhi-tattva-kārikā* see H. Shastri, *Notices*, Vol. II, p. 197: for the *Vidvan-modinī* see R. Mittra, *Notices*, VII, p. 257 (No. 2505), incomplete (sargas I—XII).

[3] R. Mittra, *Notices*, Vol. I, pp. 139,141 (Nos. 260 and 263).

[4] H. Shastri, *Notices*, Vol. II, p. 74 (No. 87), the final colophon:—

शाकेवर्गत्र्युदिति (?) रजनीनाथैर्मिते मीनभे
श्रीरामभ्रामलपदयुगं ध्यात्वा पितुः पादकम् ।
नत्वा जन्मावनिकरहरं ब्रह्मार्चितं कोमलं
श्रीनाथाचार्य्यगुरुवरके यत्नैः कृते मे लिपिः ॥[१ ॥]

we arrive at the end of the fifteenth century or the beginning of the sixteenth as the time of composition of the *Tithi-viveka-ṭīkā*. The same time may be ascribed to the *Śrāddha-viveka-vyākhyā* composed according to the instructions of his father, and therefore when his father was living. The commentary *Sāra-mañjarī* quoted in the *Śrāddha-viveka-vyākhyā* would then be still older.[1] Śrīnātha flourished therefore in the last decade of the fifteenth and the first quarter of the sixteenth century.

This conclusion about Śrīnātha's time is corroborated by the mention of him in Raghunandana's yajur-vedi-Śrāddha-tattva as his *guru* or preceptor.[2] Raghunandana flourished in the first and second quarters of the sixteenth century, as I will show *infra*. Therefore as his guru, Śrīnātha cannot be later than the first quarter of the same century.

As son of Śrīnātha, Rāmabhadra Nyāyalaṅkāra Bhaṭṭacārya would be later. He is not named by Raghunandana and was probably younger than him. He may be said therefore to have lived in the second and probably the third quarter of the sixteenth century.

As regards the sequence in Śrīnātha's works, the commentaries are, as a rule, to be ascribed to his younger days, the *Sāra-mañjarī* being probably the oldest of the known works, and the *Dāya-bhāga-ṭīkā* the latest of his commentaries. The *Arṇava* group and the *Candrikā* group belong generally to his mature age; and the *Viveka* group to his later age.

It would seem that in Navadvīpa (the admitted home of his son Rāmabhadra) his ṭol was one of the most important and influential, where brilliant students like Raghunandana and others were carefully trained. To Śrīnātha belongs the credit of popularizing the study of Jīmūtavāhana's difficult *Dāya-bhāga*. In fact by their commentaries he, his son, and his pupils like Raghunandana, established the reputation of Jīmūtavāhana for all time to come.

V.—Raghunandana Bhaṭṭācārya.

In the Bengal School of Smṛti the three most influential writers are Jīmūtavāhana. Śūlapāṇi and Ragunandana. The

[1] Sans. Coll. MS. II, 433; the *Sāra-mañjarī* is quoted in folios 20b. 53b, 60b.

[2] *Aṣṭ. Tatt.*, Sr. ed., ii. 276, एवं श्राद्धचन्द्रिकायां गुरुचरणाः, p. 280, इति श्राद्धचन्द्रिकायां गुरुचरणाः। Besides quoting some of his works by name. गुरुचरणाः are also referred to in Mala-māsa (i. 445. 470). Saṁskāra (i. 501). Suddhi (ii. 223). Tithi (i. 96). Durg-otsava (i. 54). Ekādaśī (ii. 3. 57). Chandoga vṛṣ-otsarga (ii. 309). The guru is never mentioned by name, only twice by his title Ācārya-cuṛāmaṇi in Yajur-vṛṣ-otsarga (ii. 365) and Yajur-śrāddha (ii. 273).

two first have already been dealt with, and it is meet that I should add a few words on the last but not the least of the three. He will be discussed briefly under two sub-heads :—

A. His Works.
B. His Time.

A. HIS WORKS.

Only one commentary by him is known. The rest are original treatises on the different branches of Smṛti, included under one general digest, by name the *Smṛti-tattva.* The treatises have generally at the end the word *tattva.* Originally 28 tattvas were composed ; and the digest is known as *Aṣṭāviṁśati-tattvāni.* Supplements were issued later, of which some are called *Paddhatis*, and not tattvas.

(*a*) *The Dāya-bhāga-vyākhyā.*

This is a commentary on the *Dāya-bhāga* of Jīmūtavāhana. Colebrooke suspected whether the work was of the present Raghunandana. But the final colophon giving the father's name and the kula is clear on the point,[1] while the context shows nothing incompatible with the usual acumen and learning of this author. It quotes among others, the *Kalpa-taru*, Kullūka Bhaṭṭa, the *Cintāmaṇi*, the Navyāḥ, Medhātithi, the *Mitākṣarā*, the Miśrāḥ (often), the *Ratnākara*, the *Vivāda-cintāmaṇi*, Śūlapāṇy-upādhyāya (or °pādāḥ), the *Siddhānta-ratnākara.* The Miśrāḥ, i.e., Vācaspati Miśra and his followers, have been several times criticized.[2]

(*b*) *The Aṣṭāviṁśati-tattvāni.*

These 28 tattvas have been named by the author in the introductory verses of his Malmāsa-tattva.[3] The naming is not

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1 The commentary has been printed in the edition of the *Dāya-bhāga*, edited by Paṇḍit Bharatcandra Śiromaṇi. Its final colophon runs (p. 356):— इतिश्रीवन्द्यघटीयहरिहरभट्टाचार्य्यात्मजरघुनन्दनभट्टाचार्य्यकृता दाय-भागटीका समाप्ता ॥

2 Ditto, pp. 119, 125. 130, 188. 278.

3 The twenty-eight tattvas are thus named in the Malamāsatattva, Srerampore ed., I, p. 427 :—

मलिम्लुचे दायभागे संस्कारे शुद्धिनिर्णये ।
प्रायश्चित्ते विवाहे च तिथौ जन्माष्टमीव्रते ॥ [१ ॥]
दुर्गोत्सवे व्यवहृतावेकादश्यादिनिर्णये ।
तड़ागभवनोत्सर्गे वृषोत्सर्गचये व्रते ॥ [२ ॥]
प्रतिष्ठायां परीक्षायां ज्योतिषे वास्तुयागके ।
दीक्षायामाह्निके कृत्ये क्षेत्रे श्रीपुरुषोत्तमे ॥ [३ ॥

chronological, but was put in according to the needs of versification. For example Ekādaśī (the eleventh) has been referred to in Nos. i, iv and vi, and must have been therefore composed before them, though in the list it comes after them.

It is not my intention to discuss the tattvas elaborately. They cover nearly the whole field of smṛti, name a large number of authors and works, and embody an enormous quantity of quotations. In fact the smṛtic information therein is so encyclopaedic, specially about Eastern India, that the non-mention or otherwise of any eastern smṛtic work or writer has been, in the absence of other details, taken to mark its or his time before or after the beginning of the sixteenth century.

Raghunandana is generally more careful than the average run of smṛtic writers in naming the authorities he quotes from, and hence a list of the authors and works quoted is likely to prove useful for students. In the Appendix B I have therefore given an index of all later authors or works, smṛtic and astrological, mentioned in these twenty-eight tattvas, with the number of the tattvas and the pagings of the Srerampore edition. In all 89 authors and 226 works have been noted. The references are, of course, not exhaustive, but I believe no important names have been omitted.

(c) *Supplementary Tattvas and Paddhatis.*

The following works are outside the 28 tattvas; but from the introductory verse and the final colophons they appear to be of the present author. They deal with matters not treated in the original tattvas. Some of them are in fact manuals of rites to be performed, and two are called distinctly *paddhatis* or handbooks of procedure. The supplementary works as yet discovered are :—[1]

(i) *Tīrtha-yātrā-tattvas* or *Tīrtha-tattva* or *Tīrtha-yātrā-vidhi-tattva.* It deals with pilgrimages to various tīrthas or sacred places like Gayā, Kāśi, Puruṣottama, etc. It purports to be a part of the general digest *smṛti-tattva.*

(ii) *Dvādaśa-yātrā-tattva* or °*pramāṇa-tattva.* It deals with the twelve principal festivals of Jagannātha at Puri, one in each month.

सामश्राद्धे यजुःश्राद्धे शूद्रकृत्यविचारणे ।
इत्यष्टाविंशतिस्थाने तत्त्वं वक्ष्यामि यत्नतः ॥ [५ ॥]

[1] For (i), see H. Shastri, *Notices*, Vol. I. p. 159 (No. 153), Sans. Coll. MS. No. II. 511; for (ii) see R. Mittra. *Notices*, VI, p. 296 (No. 2232), As. Soc. MS. II. A. 38; for (iii) see R. Mittra, *Notices*, III, p. 52 (No. 1082); for (iv) see Sans. Coll. MSS. II, 458. 460; for (v) see R. Mittra, *Notices*, I, no. 338.

(iii) *Tripuṣkara-śānti-tattva*, treating of funeral rites to be performed at Trīpuṣkara.

(iv) *Gayā-śrāddha-paddhati*, describing the funeral ceremonies to be performed at Gayā.

(v) *Rāsa-yātrā-paddhati*, describing the ceremonies of the Rāsa festival which had been omitted in the previous works.

B. HIS TIME.

The time of Raghunandana, though so famous, has not yet been established. His lower limit is fixed by the earliest manuscripts. A MS. of the *Chandoga-śrāddha-tattva* has been found copied in Śaka 1497 (1575-6 A.D.); a MS. of the *Maṭha-pratiṣṭhā-tattva* in Śaka 1498 (1576-7 A.D.).[1] The works themselves must therefore be still older. The upper limit is fixed by the time of his guru Śrīnātha Ācārya-curāmaṇi and by the mention of Śaka 1421 (1499-1500 A.D.) in his *Jyotiṣ-tattva* as the year in which the viṣubha or equinox lay half-way between the zodiacal signs Mīna and Kanyā.[2] His time therefore lies roughly between 1510–1565 A.D.

In trying to ascertain a nearer approximation in time, I will first discuss some of the arguments on which Raghunandana has been tried to be placed after the middle of the sixteenth century.

According to Paṇḍit Haraprasāda Shastri, the *Pratiṣṭhā-tattva*, "one of the 28 books of the writer's great digest, was composed during the latter half of the sixteenth century. It quotes from Hari-bhaktivilasa of Gopāla Bhaṭṭa composed in A.D. 1562."[3]

There are two *Pratiṣṭhā-tattvas* in the digest, one on Deva, and the other on Maṭha. I have searched both and have not come across a single passage that can be referred to the above work or author. In the Ekādaśī and Āhnika tattvas a work named *Hari-bhakti* has been quoted. Whether this is identical with the *Hari-bhakti-vilāsa* of Gopāla Bhaṭṭa it is not possible to say until the passages are verified. Aufrecht names fourteen works having the name *Hari-bhakti* in the beginning, five of which exists in the India Government collection of MSS. One *Hari-*

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[1] For the MS. of Śaka 1497, see R. Mittra, *Notices*, III, p. 50 (No. 1081), and of Śaka 1498, Do., p. 53 (No. 1083).

[2] Sr. ed., I. p. 330, विषुवं मीनकन्यार्द्धे लेका-चौ-न्द्र शकाब्दके । The time of Śrīnātha has been discussed *supra*.

[3] Nepal Durbar *Catalogue* (1905), preface, p. xvii. For the *Hari-bhakti*, Sr. ed., i. 239, ii. 37. For Sanātana's work, R. Mittra, *Notices*, VI. 193 (No. 2125):—

हरिभक्तिविलासस्य तट्टीका दिक्प्रदर्शिनी ।
लीलास्तवटिप्पणी च श्रीमद्वैष्णवतोषिणी ॥

bhakti-vilāsa itself is ascribed to Sanātana Gosvāmī by his nephew Jīva, whose time may be about or earlier than the middle of the fifteenth century.

R. Mittra ascribes the astrological *Samaya-pradīpa* to "Harihara Bhaṭṭācārya, the father of Raghunandana." According to the final colophon of this MS., the *Samaya-pradīpa* was compiled by Harihara Bhaṭṭācārya at the request of the śiṣyas (pupils) in Śāka 1481 or 1559 A.D.[1] Naturally the son would be still later. But Mittra adduces no reasons why this astrological writer should be identified with the father of Raghunandana. On the other hand, the final colophon of this MS. of Mittra is doubtful, probably wrong. For in its own introductory verse the author's title is given as Harihara Ācārya and not Bhaṭṭācārya, and this title (Ācārya) appears also in the final colophons (and the introductory verse) of the MS. of *samaya-pradīpa* in the Asiatic Society's Library, and of three more MSS. in the India Government collection. Harihara Ācārya cannot *prima facie* be considered the father of Raghunandana, Vandyaghaṭiya in family; and therefore any conclusion about his late age on this ground will not hold good.

Govindānanda Kavikaṅkaṇācārya wrote several works on smṛti, ending with the word *kaumudī*.[2] His time falls about the middle of the fifteenth century. For in the *Śuddhi-kaumudī*, while speaking of the intercalary months, he says that in Śaka 1449, the month Āṣāḍha had an intercalary month, in Śaka 1452 Vaiśākha had one, in Śaka 1454 Bhādra had one, and in Śaka 1457 Śrāvaṇa had one.[3] Thus Śaka years 1449 to 1457 are mentioned, i.e. 1527 to 1535 A.D. The *Śuddhi-kaumudī* that

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[1] R. Mittra, *Notices*, III, p. 57 (No. 1088). The final colophon runs thus :—

शाके महीमङ्गलवेदचन्द्रसङ्ख्यागते शिष्यगणानुरोधात् ।
प्रज्वलिता ज्योतिषपुस्तकानामाकृष्य सारं समयप्रदीपः ॥ [१ ॥]
इति श्रीहरिहर भट्टाचार्य (?) संगृहीतः समयप्रदीपः समाप्तः ॥

The introductory verse 2 says :—

ज्योतिर्ग्रन्थकलापानां वचनान्याकृष्य बोधाय ।
समयप्रदीपमेव कुरुते श्रीहरिहराचार्य्यः ॥ [२ ॥]

[2] The *Dāna-kaumudī*, the *Śuddhi-k°*, the *Śrāddha-k°*, and the *Varṣakriyā-k°* have been printed in the Bib. Ind. The *Artha-k°* (a commentary on the *Śuddhi-dipikā* of Śrīnivāsa) has been printed in Bengali, and a MS. of the *Tattva-k°* (a commentary on the *Śrāddha-viveka* of Śūlapāṇi) I have seen. The two commentaries appear to be the earliest, then *Dāna* (quoted in the *Śuddhi*), then *Śuddhi* (quoted in the *Śrāddha* and the *Varṣa-kriyā*), then *Śrāddha* (quoted in the *Varṣa-kriyā*).

[3] The *Śuddhi-kaumudī*, Bib. Ind. ed., p. 270 :—

तथा च ऊनपञ्चाशदधिकचतुर्दशशतशकाब्दे आषाढो मलमासः । ततः परं द्विपञ्चाशदधिकचतुर्दशशतशकाब्दे वैशाखो मलमासः । तथा चतुःपञ्चाशदधिक-

mentions these years would have been composed some time later, but not much later, say about 1545 A.D. The *Śuddhi-kaumudī* itself is mentioned in the author's other works, the *Śrāddha-kaumudī* and the *Varṣa-kriyā-kaumudī*, which must therefore be still later, or say about the middle of that century.

Now the editor of the Biblotheca Indica edition says that '"Barsakritya has been quoted by Raghunandana Bhattacarya in his Malamasa Tattwa" in the caturmasya vrata prakarana, and Kriyā kaumudi in the "Ahnika Tattwa" snan prakarana.'[1] He would therefore place Govindānanda earlier than Raghunandana, whose time accordingly would fall later than the middle of the sixteenth century.

But the editor appears to me to have fallen into some confusion. The *Varṣa-kṛtya* is really a common noun signifying the periodical festivals during a year, and was applied generally to that section of the Kṛtya works which described these festivals. The name will be found quoted in the *Durg-otsava-viveka* of Śūlapāṇi, who lived a century and half before Govindānanda.[2] It is quoted five times by Raghunandana, in one of which he distinctly says:—*Vidyāpati-kṛta-varṣa-kṛtye Kalpa-latāyāñca Gārgyaḥ*, thus mentioning a *Varṣa-kṛtya* of Vidyāpati.[3] It would be thus far-fetched to infer that by *Varṣa-kṛtya* Raghunanadana meant the *Varṣa-kriyā-kaumudī* of Govindānanda, until the passages are verified. Similarly the *Kriyā-kaumudī* quoted by Raghunandana cannot be the *Varṣa-kriyā-kaumudī* of Govindānanda, for the former work is quoted by Govindānanda himself in his *Śrāddha-kaumudī*, a work composed earlier than *Varṣa-kriyā*,[4] and while quoting the same no hint is given there that the said work was Govindānanda's. Thus no data exist for holding that Raghunandana ever quoted or even knew any work of Govindānanda.

On the other hand the year Śaka 1421, quoted in the Jyotiṣ-tattva, could not have been far from the time of its composition as then the astronomical calculation would have been within the memory of the writer. Moreover as a pupil of Śrīnātha he cannot be much later than his guru who flourished in the last decade of the fifteenth and the beginning of the sixteenth century. Of course the composition of so many works must have taken a considerable period. On the whole

चतुर्दशशतशकाब्दे भाद्रो मलमासः। ततः परं सप्तपञ्चाशदधिकचतुर्दशशतशकाब्दे श्रावणो मलमासः।

[1] Preface to the *Varṣa-kriyā-kaumudī*, p. ii.

[2] Sans. Coll. MS. II, 335, fol. 17a.

[3] Sr. ed., Mala-māsa, i. 449, 474, 475; Durg-otsava, i. 66; Ekādaśi, ii. 55.

[4] The *Kriya-kaumudī* quoted in the *Śrāddha-kaumudi*, p. 559.

it would not be far from truth to hold that Raghunandana's principal works were composed between say 1515-1545 A.D.

The twenty-eight tattvas with their supplements are monuments of wide reading, patient industry, and wonderful memory. Backed by keen reasonings, strong prejudices, and vigorous criticisms of the predecessors, specially the Maithilis, they dominated the field of smṛti learning in Bengal, and soon became famous outside Bengal. He and his school came to be known as *Smārta-Bhaṭṭācāryāḥ* (probably from the junction of his digest and his own name), or more briefly as *smārtāḥ*. After Raghunandana, little progress is noticeable in smṛtic studies. In fact Raghunandana gave the last word in the Bengal School of Smṛti, just as in the century following Gadādhara Bhaṭṭācārya did in the Bengal School of logic (Nyāya).

VI. Bhaṭṭa Lakṣmīdhara.

Both the Bengal School and the Mithilā School of Smṛti were powerfully influenced by an outside work, the *Kṛtya-kalpa-taru* of Lakṣmīdhara. Consequently no account of either school can be satisfactory without some notice of this writer. In the present article he will be discussed briefly under three heads:—

A. His Works.
B. His Time.
C. His Influence.

A. HIS WORKS.

Lakṣmīdhara wrote only one work, the *Kṛtya-kalpa-taru*, the all desire-fulfilling tree of duties, or as it is generally mentioned abbreviated, the *Kalpa-taru*. It is a general digest, a large compilation sub-divided into kāṇḍas or branches. No complete MS. has been yet reported. The fullest MS. found contains only twelve kāṇḍas.[1] Generally each kāṇḍa forms

[1] The fullest MS. is in the library of the Mahārāṇā of Udayapura. Peterson's first Report, 1883, pp. 108-111. How large the original work must have been can be inferred from the fact that the existing twelve kāṇḍas alone (the first incomplete) run up to 1108 folios with 8 to 10 lines in a page, which page had letters 39 to 52 in a line.

I have myself seen four MSS, Rājadharma, Vyavahāra, Śuddhi and Dāna. Rājadharma is in the library of the Asiatic Society (57 folios with 9 lines) and bears on the front and the back a seal of the College, Fort William. The Vyavahāra is in Ind. Govt. collection, the MS. No. 1437, and has been described in Mittra's *Notices*, V. 142 (No. 1833). The other two are on corypha leaves, and have not yet been described. The Dāna kāṇḍa (Ind. Govt. No. 4026) has 131 leaves, $13\frac{1}{10}'' \times 1\frac{9}{10}''$, leaves 1 to 4 damaged, and a few leaves at the end (except the last) much worm-eaten. 5 lines to a page, 4 on the left page. Characters Maithili (see the letters *i*, *va*, and *ha*), copied लसं १७४ कार्त्तिकशुदि ५ बुधे सकिनौलिग्रामे

a separate MS. and at the utmost two to four are found in a library in this separate state. The MSS. generally mention the position of each kāṇḍa in the original complete work. The twelve kāṇḍas as yet found with their position are noted below alphabetically arranged :—

- (i) Gṛhastha, on the duties, fasts and festivals of householders (second kāṇḍa) ;
- (ii) Tīrtha, on pilgrimage to sacred places (eighth) ;
- (iii) Dāna, on the religious gifts (fifth) ;
- (iv) Naiyata-kāla or °kālika, on āhnika or the daily duties of a householder (third) ;
- (v) Pratiṣṭhā, on the consecration of idols etc. (sixth) ;
- (vi) Brahmacāri, on the unmarried Vedic student (first) ;
- (vii) Mokṣa, on salvation (fourteenth) ;
- (viii) Rāja-dharmma, on the kingly duties (eleventh) ;
- (ix) Vyavahāra with vivāda, on law (twelfth) ;
- (x) Śānti or Śāntika-pauṣṭika, on propitiary rites (thirteenth) ;
- (xi) Śuddhi, on purification (tenth) ;
- (xii) Śrāddha, on funeral ceremonies (fourth).

At least two more kāṇḍas existed, for the Mokṣa had in the original the position of fourteenth. The two wanting are the seventh and the ninth of the original.

Now I have come across a MS. whose first leaf is missing, and the end is lost ; but from the only colophon found it appears to form a part of the *Kṛtya-kalpa-taru.*[1] After describing

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समस्तप्रक्रियाविरा + + (जमा ने महावर कुमार श्रीमद्गदाधरसिंहदेव-पादानामाज्ञया श्रीशुभपतिना लिखितमिदं पुस्तकमिति ॥ शाके १४१६ ॥ The date is repeated again in words at the end. For another Maithili MS., copied by this copyist Subhapati in La. Saṁ. 373 by order of this Gadādharadeva, see the Nepal *Catalogue*, p. 65. Prince Gādadharadeva was grandson of Dhīrasimha who was brother of the Mithilā king Bhairavendra.

The Śuddhi Kāṇḍa (Ind. Govt. MS. No. 4741) had 100 corypha folios, 13″ × $\frac{7}{16}$″. Of these 25 folios are missing, and 11 folios so seriously damaged as to lose a number of letters. 4 lines to a page. Characters Nāgri. MS. copied in संवत् १४४६ समय पौषशुदि १४ शनौ श्रीमन्नारायण-पुरस्वपनारायणत्यादि (several letters gone) द रवराजौविभाजमान महावपति श्रीमद्रामसिंहदेव भूज्यमानयावो द्विजवर ष (?)टकर्म्मणिववेभादि संस्तूयमान शुल्क (?) (several letters gone) करकुलालंकृत सत्यपिडत श्रीनौकाङ्केनालेखि ॥ The MS. is thus an old one.

[1] Ind. Govt. MS. No. 8404. Its last folio is numbered 117. Of these 18 folios are missing, while two are so torn as to lose several letters. Two leaves (numbered 3 and 25) seem to belong to another MS. on rhetoric. The only colophon found is in fol. 37a and runs thus :— इति कृत्यकल्पतरौ दौनापर्व्वः । From the crabbed handwriting, and a note

the *dīkṣā* or initiation, it proceeds to describe the rites for the worship of deities, Sūrya, Śiva, Brahmā, Viṣṇu and Durgā, ending with the car-festivals, the ratha-yātrās of Śiva, Brahmā and Durgā, but without any mention of Jagannāth's car-festival. Judging from Caṇḍeśvara who imitated Lakṣmīdhara and wrote a volume on the worships of deities named the *Pūjā-ratnākara*, this MS. may be called the *Pūjā kāṇḍa* of the *Kṛtya-kalpa-taru*, forming one of the missing sections.

Similarly, in the Mala-māsa and Prāyaścitta tattvas Raghunandana quotes a *Prāyaścitta-kāṇḍa kalpa-taru*,[1] a section that does not appear in the above list. That Lakṣmīdhara wrote on Prāyaścitta is clear from the *Prāyaścitta-viveka* of Śūlapāṇi, where the *Kalpa-taru* and its author are quoted at least twelve times on Prāyaścitta matters. In fact it is improbable that Prāyaścitta which formed a very important section of older smṛtis (e.g. in the Yājñavalkya-*saṁhitā*, Manu-*saṁhitā* and other Dharma-Śāstras) would have been left entirely untouched in Lakṣmīdhara's Digest. So there would have been at least a Prāyaścitta-kāṇḍa. The position of Pūjā would naturally be after Pratiṣṭhā, i.e. the seventh, and of Prāyaścitta before Śuddhi, i.e. the ninth; and we see that these are the two wanting in the fullest MS.

In the Vyavahāra-kāṇḍa the author speaks of a Vivāha-kaṇḍa.[2] Whether this was an independent section or formed a part of the gṛhastha-kāṇḍa I am not in a position to say.

The *Kṛtya-kalpa-taru* is practically a compilation from the older smṛtic authorities. It gathers together on a specific point quotations from the gṛhya works, their supplements, the various Purāṇas, and the Smṛti-writer sages, with interpretations of their words and only occasional comments. References to later works or writers are very rare. Medhātithi, the author of *Manu-bhāṣya*, has been occasionally quoted as an authority in the gṛhastha, Dāna, Vyavahāra and Śuddhi kāṇḍas. In the Vyavahāra-kāṇḍa alone, I have found a few more names (only rarely mentioned), the *Kāma-dhenu*, the *Pārijāta*, the [*Smṛti-mahārṇava-*] *prakāśa*, Vijñāneśvara, Śabara Svāmin and Halāyudha. This Halāyudha is, of course, different from Halāyudha Bhaṭṭa, the judge of the king Lakṣmaṇa-senadeva.

On the front leaf मालवीय रघुनाथशर्म्मणः, the MS. seems to be of West India. The folios are of country-made whitish paper, two papers pasted forming a leaf, size $12\frac{4}{5}'' \times 3\frac{3}{4}''$.

[1] The *Aṣṭāviṁśati-tattvāni*, Sr. ed., Mala-māsa, i. 434; Prāyaścitta, i. 308.

[2] Ind. Govt. MS. No. 1437, fol. 101a:—तत्र विवाहविधिर्विवाहकाण्डे वर्णितः।

B. HIS TIME.

In the colophons Bhaṭṭa Lakṣmīdhara is described as son of Bhaṭṭa Hṛdayadhara and as *Māha-sāndhi-vigrahika* (peace and war minister) of Mahārājādhirāja Śrīmad-Govindacandra-deva. In the final colophon of the Vyavahāra Kāṇḍa Lakṣmīdhara is said to have composed it by order of Govindacandra-deva.[1] In another article I have already pointed out that this Govindacandradeva was king of Kanauja and had numerous inscriptions ranging from 1104 to 1154 A.D.; and that therefore the time of the *kalpa-taru* falls in the first half of the twelfth century.[2]

The anterior limit can now be fixed a little closer by the mention of Vijñāneśvara. In the Vyavahāra Kāṇḍa, sub-section *dāsy-ādhikāriṇah*, the opinion of Vijñānesvara is quoted and criticized.[3] According to the final verse No. 4 of Vijñāneśvara's *Mitākṣarā*, he flourished at Kalyāṇapura in the reign of the illustrious Vikramárka.[4] The latter is evidently the western Cālukyan king Vikramāditya VI whose inscriptions range from Śaka 999 to 1047, or 1077—1325 A.D.[5] The time of the *Mitākṣarā* thus falls approximately towards the end of the eleventh or the beginning of the twelfth. Some time must have elapsed before the *Mitākṣarā* could have been known and studied at Kanauj in Northern India. Thus the time of the Vyavahāra Kāṇḍa of the *Kalpa-taru* falls in the second quarter of the twelfth. Its position was twelfth in the original composition, and it is thus probable that some of the previous kāṇdas had been composed in the first quarter. Hence the time of the *Kṛtya-kalpa-taru* falls partly in the latter half of the first quarter, and partly in the first half of the second quarter of the twelfth century.

C. HIS INFLUENCE.

No commentary on the *Kṛtya-kalpa-taru* exists. In fact compilations like the *Kalpa-taru*, Devaṇṇa Bhaṭṭa's *Smṛti-*

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1 Ind. Govt. MS. No. 1437, fol. 141a:—इति महाराजाधिराज श्रीमद्गोविन्दचन्द्रदेवादिष्टेन महासान्धिविग्रहिकेण भट्टहृदयधरात्मजश्रीमल्लक्ष्मीधरेण विरचितं कृत्यकल्पतरौ व्यवहारकाण्डादिकं समाप्तं ॥

2 My article on "Bhaṭṭa Bhavadeva," J.A.S.B., 1912, pp. 344-5.

3 Ind. Govt. MS. No. 1437, fol. 67a:—स्वधर्म्मस्तु ब्राह्मणो ब्राह्मणं दासकर्म्माणि न कारयेदिति विज्ञानेश्वरः स्वरसः ।

4 Verse 4 at the end:—"There has not been, nor is, nor will be on earth a city comparable to the Kalyānapura; no king has been seen or heard of who is comparable to the illustrious Vikramārka; nothing else that exists in this kalpa bears comparison with the learned Vijnānesvara. May these three who resemble (the three) kalpa creepers be endowed with stability." Bühler, Bomb. Br., R.A.S., 18th Oct. 1868.

5 For the latest inscription of Vikramāditya VI Tribhuvanamalla, dated Śaka 1047, see *Ind. Ant.* XII, p. 212.

candrikā, Hemādri's *Caturvarga-cintāmaṇi*, and Caṇḍeśvara's *Ratnākara* were too large and contained too few remarks of the author to need any commentary.

Nevertheless the influence of the *Kalpa-taru* is distinctly perceptible in the later Smṛtic literature up to the beginning of the sixteenth century. This influence is traceable in the Bengal school, the Mithilā School, the North Indian School and even in schools outside North India. Firstly in the Bengal School, Aniruddha was the earliest to quote the work as authority, and Ballālasenadeva's *Ācāra-sāgara*, *Pratiṣṭhā-sāgara* and *Dāna-sāgara* seem to have felt its influence. Coming down to the Hindu revival, the *Kalpa-taru* was largely quoted in the works of Śūlapāṇi, Śrīnāthācārya and Raghunandana.

On the Mithilā School its influence was still greater. Śrīdattopādhyāya was the earliest to quote it. Caṇḍeśvara distinctly admits that his *Ratnākara* was based on the *Kalpa-taru*. In fact his *Ratnākara* contains wholesale plagiarisms of Lakṣmīdhara's work, in its general divisions, smaller subsections, and in quotations from authorities, including even his interpretations and comments thereon. The *Kalpa-taru* is also largely quoted by other Maithilis, as Harināthopādhyāya, Vidyāpati, Vācaspati Miśra, Varddhamānopādhyāya, Rudradhara.

Outside East India, in Northern India the *Kalpa-taru* was referred to as an authority by Harihara Agnihotri, Viśveśvara Bhaṭṭa (*Madana-pārijāta*), Allāḍanāthā Sūri (*Nirṇay-āmṛta*), Gaṅgāditya (*Smṛti-cintāmaṇi*), and in Western India by Hemādri (in Dāna-khaṇḍa).

After the fifteenth century, the *Kalpa-taru* began to be less and less quoted, until it either ceased to be quoted or was known only indirectly from quotations extracted in the previous works. By that time there had come into existence other compilations which better suited the needs of later times and the *Kalpa-taru* was neglected. Hence copies of the work began to be scarce, a fact which explains the non-existence of any complete MS. in the present days. I find Vidyānivāsa had got the *Kalpa-taru* copied, curiously enough by Śudras, in Śaka 1510, or 1588-9 A.D. Evidently he got the whole work copied (each kāṇḍa copied separately), of which two, the Dāna and the Naiyata-kālika, have survived to modern time.[1]

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[1] For the Dāna-kāṇḍa copy see *Ind. Off. Cat.* III. 409, No. 1385 (wanting the introductory verses); for the Naiyata-kālika copy see R. Mittra, *Notices*, VI. p. 247 (No. 2183). Both the MSS. give the same date (Śaka 1510), but names of different copyists (Śudra Kavicandra, Śudra Ravicandra). Is the latter name a misreading of Kavicandra?

APPENDIX A.

(Page 35).

ACYUTA CAKRAVARTTĪ.

He is closely connected with the family of Śrīnātha as a rival. He wrote :—

(i) The *Śrāddha-viveka-ṭippanī.* No MS. as yet found. Quoted in his *Dāya-bhāga-ṭīkā.*[1] It would seem to have been a rival commentary to that of Śrīnātha, probably criticizing the latter work.

(ii) The *Dāya-bhāga-siddhānta-kumuda-candrikā*[2], a commentary on the *Dāya-bhāga*, also a rival to that of Śrīnātha which it criticizes at several places, and which was defended in some instances by Rāmabhadra. It does not appear to be inferior to Śrīnātha's, has been quoted by another commentator Maheśvara Bhaṭṭācārya and was largely used in the better known Śrīkṛṣṇa Tarkālaṅkāra's *ṭīkā*. It quotes the usual later authorities, Kullūka Bhaṭṭa (once), *Prakāśa*-kāra (once), the *Madana-pārijāta* (once), the *Mitākṣarā* (once), Miśra (3), the *Ratnākara* (several times), Śūlapāṇi (once), and Halāyudha (once).

(iii) The *Sandarbha-sūtikā*, a commentary on Aniruddha Bhaṭṭa's *Hāra-latā*,[3] being the oldest known commentary on that work. It quotes, among others, the

Karm-opadeśinī (1).
Karma-pradīpa.
Kubera (1).
Govindarāja (1).
Caturbhuja (1).
Jīmūta-vāhana (1) (from the *Dāya-bhāga*).
Nārāyaṇ-opādhyāya (9).
Nīlāmbara (1).
Pariśiṣṭa-prakāśa (1).
Pārijāta (2).
Pitṛ-caraṇāḥ (4).
Prakāśa-kāra (1).
Mitākṣarā (6).
Mitākṣarā-kāra (1).
Miśrāḥ (11).
Medhātithi (1).
Ratnākara (5).
Ratnākara-kāra (1).
Rudradhara (5).
Varddhamāna (1).
Vācaspati Miśra (1).
Śūlapāṇi (2).
Harihara (1).
Hemādri (1).

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[1] Bharat Śiromaṇi's ed., p. 44 (I.37), अस्मत्कृतश्राद्धविवेकटिप्पणा-मनुसन्धेयम् ।

[2] Printed in Bh. Śiromaṇi's ed. In R. Mittra, *Notices*, VI. 142. (MS. 2079), the *Dāya-bhāga-siddhānta-kumuda--candrikā* has been wrongly attributed in the final colophon to Mahāmahopādhyāya Ramabhadra instead of Acyuta.

[3] Sans. Coll. MS., II, 211.

APPENDIX B.

(Page 43).

An Index of late works or writers, chiefly Smṛtic and Astrological, in the twenty-seven Tattvas of Raghunandana.

N.B.—*The works are italicised and where practicable are also noted under their authors. The capital figures in square brackets refer to the No. of the tattvas; the other figures to the volume and page of the Srerampore Edition* (1834–35 *A.D.*). *The tattvas are numbered according to the introductory verses of the Malamāsa-tattva.*

I. Mala-māsa.
II. Dāya-bhāga or Dāya.
III. Saṁskāra.
IV. Suddhi.
V. Prāyaścitta.
VI. Vivāha or udvāha.
VII. Tithi.
VIII. Janm-āṣṭamī.
IX. Durg-otsava or Durgā-pūjā.
X. Vyavahāra.
XI. Ekādasī.
XII. Taḍāga-bhavan-otsarga, or Jalā-say-otsarga.
XIII. Chhandoga-vṛṣ-otsarga.
XIV. Yajuḥ-vṛṣ-otsarga.
XV. Ṛg-vṛṣ-otsarga (not printed in the Sr. ed.) See R. Mittra, VII. 119, No. 2349, only one folio.
XVI. Vrata.
XVII. Deva-pratiṣṭhā.
XVIII. Maṭha-pratiṣṭhā.
XIX. Divya or Parīkṣā.
XX. Jyotiṣa.
XXI. Vāstu-yāga.
XXII. Dīkṣā.
XXIII. Āhnika.
XXIV. Kṛtya.
XXV. Puruṣottama kṣetra.
XXVI. Sāma-śrāddha or simply Śrāddha.
XXVII. Yajuḥ-śrāddha.
XXVIII. Śūdra-kṛtya.

N.B.—The tattvas of Raghunandana are marked with asterisk.

Adbhuta-sāgara—[I] i. 403; [XX] i. 408.

Adhikaraṇa-mālā—[I] i. 461, 465; [IX] i. 44.

Ananta Bhaṭṭa—[VIII] i. 34.

Aniruddha Bhaṭṭa—[I] i. 462; [IV] ii. 159, 162, 172, 184; [V] i. 297; [XI] ii. 24; [XXIII] i. 237; [XXVI] i. 134, 137, 140, 141(2), 148(2), 152, 153, 154, 171 [*Pitṛ-dayitā, Hāra-latā*].

Antyeṣṭi-vidhi-anumaraṇa-viveka (Jīkanīya)—[iv] ii. 133.

Andhūka Bhaṭṭa—[I] i. 447.

Apipāla—[I] i. 457; [XXVI] i. 136; [XXVII] ii. 277, 279(2).

Ācāra-candrikā—[XXIII] i. 208.

Ācāra-cintāmaṇi—[I] i. 459; [VII] i. 14; [XXIII] i. 206.

Ācāra-pradīpa—[XXIII] i. 252.

Ācāra-Mādhavīya—[I] i. 455; [V] i. 298; [VI] ii. 62; [XI] ii. 13; [XXIII] i. 225, 251, 253.

Ācāra-ratna—[XXIII] i. 219.

Ācāra-ratnākara—[IV] ii. 154; [XXIII] i. 256.

Ācārya-cūrāmaṇi—[XIV] ii. 365; [XXVII] ii. 273. See Guru-caraṇāḥ. [*Ācāra-candrikā*, *Kṛtya-tattv-ārṇava*, *Śuddhi-tattv-ārṇava*, *Śrāddha-candrikā*].

Ācārya(ā)-darśa—[XXIII] i. 252.

Āyur-dāya—[I] i. 439.

Āhnika-cintāmāṇi—[XI] i. 32; [XXIII] i. 216.

**Āhnika-tattva*—[XXVI] i.147, 157; [XXVIII] ii. 362.

Āhnik-oddhāra—[XXIII] i. 252.

Īśāna Nyāyācārya—[XXVI] i. 191.

Īśānācārya—[XI] ii. 19.

Utkaladēśa [IV] ii. 159.

**Ekādaśī-tattva*—[I] i. 466; [IV] ii. 133, 171; [VI] ii. 81; [VII] i. 72, 96.

Oḍhra—[IV] ii. 154; [VI] ii. 66.

Karka or Kark-opādhyāya—[XXVI] i. 136, 139, 141, 153; [XXVII] ii. 273, 277.

Karmma-prakāśa—[XX] i. 343.

Karmm-opadeśinī—[IV] ii. 178. 180, 186. 199; [VII] i. 96; [XIII] ii. 304.

Karmma-vipāka—[I] i. 481; [IV] ii. 135.

Kalpa-taru—[I] i. 434(2), 457. 458, 459, 471, 474(2); [II] ii, 93, 94, 97, 98(2), 104, 109; [III] i. 500, 511, 527, 528, 543; [IV] ii. 132(2), 147, 166, 173, 176(2), 182, 189, 196, 206, 209, 211, 213, 216, 218, 219, 221; [V] i. 283, 285, 291, 300, 310, 311, 316, 320, 323; [VI] ii. 73, 76, 79, 82; [VII] i. 7, 11(2), 24, 99, 108(2), 109, 111, 112(2), 114; [IX] i. 148; [XI] ii, 3. 5(2), 10, 12, 14, 18, 34, 52(2), 53, 57, 58; [XIII] ii. 300, 308; [XVII] ii. 284(2); [XIX] ii. 349(2); [XX] i. 379, 385, 387; [XXI] ii. 230(2), 234; [XXIII] i. 219(2), 240, 255, 268, 274; [XXVI] i. 131, 137 (2), 138, 139 (2), 144, 146, 148, 155, 167, 170, 180, 187, 193; [XXVII]] ii. 270.

Kalpa-latā—[I] i. 475.

Kaliṅga—[IV] ii. 154.

Kavi-kānta-sarasvatī—[XI] ii. 29.

Kādi (-mata)—[XVII] ii. 285.

Kāma-dhenu—[I] i. 459; [II] ii. 100; [IV] ii. 206, 210, 221; [VI] ii. 82: [VII] i. 24; [XI] ii. 3; [XIII] ii. 301; [XXIII] ii. 206, 252.

Kāmarūpīya-nibandha—[I] i. 473, 477; [V] i. 325; [IX] i. 54; [XII] ii. 56.

Kāla-kaumudī—[VII] i. 79, 83, 90, 91; [IX] i. 46.

Kāla-nirṇaya—[IX] i. 55 (*Dákṣiṇātya*); [XI] ii. 29.

Kāla-viveka—[I] i. 448, 480; [IV] ii. 188; [VII] i. 68, 69, 90, 92; [XI] ii. 23, 25, 27, 48; [XIII] ii. 299; [XXIII] i. 207.

Kāla-Mādhavīya—[I] i. 429, 438, 453, 455, 461, 485, 487, 492, ; [IV] ii. 162, 190, 191 (2); [VII] i. 4, 5, 9, 11, 15, 20, 31, 38, 68, 70, 77, 80, 91, 92, 99, 104, 109; [IX] i. 57, ; [XI] ii. 3, 5, 10, 20,

21, 23, 25, 27, 29, 30, 53; [XIII] ii. 300; [XXVI] i. 159, 166, 168, 176.
Kāl-ādarśa—[I] i. 429; [IV] ii. 186, 191; [VII] i. 11 (2); [XI] ii. 55; [XXVI] i. 176 (2).
Kālāpāḥ—[IV] ii. 159.
Kāl-ottara—[I] i. 454; [XXII] ii. 370.
Kāśmīra—[I] i. 489.
Kubera or Kuber-opādhyāya—[IV] ii. 144; [XXVI] i. 183.
Kullūka Bhatta—[I] i. 434 (2), 458, 462; [II] ii. 100, 108, 110; [III] i. 513 (2), 518; [IV] ii. 165, 176, 200, 201, 211; [V] i. 280, 300, 312 (2); [VI] ii. 72, 80; [X] ii. 119, 125 (2); [XI] ii. 4, 7; [XXIII] i. 214, 269; [XXVI] i. 143 (2), 152, 153.
Kṛtya-kalpa-latā—[I] i. 476; [VII] i. 24; [XI] ii. 10.
Kṛtya-kaumudī—[I] i. 434; [VII] i. 88.
Kṛtya-cintāmaṇi—[I] 432, 433, 434 (2), 441, 442 (2), 443, 461, 462, 473 (3), 476, 477 (3), 481, 491; [III] i. 527, 528, 532 (3); [IV] ii. 140, 183; [VI] ii. 69; [VII] i. 22, 27; [VIII] i. 27; [IX] i. 43; [XI] ii. 3; [XVIII] ii. 350; [XX] i. 348, 354, 358, 359, 360, 379, 380, 381, 383, 384 (2), 387, 409; [XXIV] ii. 239, 263; [XXVI] i. 174, 196.
Kṛtya-tattv-ārṇava—[I] i. 469; [IV] ii. 132; [V] i. 294; [VI] ii. 73; [VII] i. 103; [IX] i. 55; [XXIII] i. 216
Kṛtya-pradīpa—[IV] ii. 206; [XII] ii. 293; [XVI] ii. 89; [XVIII] ii. 355; [XXVI] i. 132, 134, 135, 153, 193 (2); [XXVII] ii. 273.
Kṛtya-mahārṇava—[VII] i. 69; [IX] i. 52, 65 (2); [XI] ii. 10, 22, 25.
Kṛtya-ratnākara—[IX] i. 54; [XX] i. 399.
Kaumudī—[XXIII] i. 226.
[*Śāradā-*] *Krama-dīpikā*—[XXII] ii. 373.
Kriyā-kaumudī—[XXIII] i. 209.

Gaṅg-āmṛta—[V] i. 293.
Gaṅgā-vākyāvalī—[I] i. 434, 436, 442; [IV] ii. 193, 200, 208; [V] i. 288, 290, 291, 293, 295 (2), 296; [VII] i. 24, 91, 101; [IX] i. 50; [XXVI] i. 161, 197 (2).
Gaṇeśvara—[XXVI], the Baṅgavāsī edition, p. 251. [*Sugati-sopāna*].
Gada Siṁha—[I] i. 437.
Gavākṣa-tantra—[IX] i. 49.
Gītā-subodhinī—[VI] ii. 82.
Guṇa-viṣṇu—[III] i. 516, 519, 534; [IX] i. 63 (2); [XVIII] ii. 352; [XXVI] i. 134, 135, 171.
Guṇi-sarvvasva—[VII] i. 96.
Guru-caraṇāḥ—[I] i. 445, 470; [III] i. 501; [IV] ii. 222; [VII] i. 96; [IX] i. 54; [XI] ii. 3, 57; [XII] ii. 309; [XXVII] ii. 276, 280. See Ācārya-curāmaṇi.
Gṛhastha-ratnākara—[V] i. 300, 306; [VI] ii. 64; [VII] i. 77.
Gobhila-śrāddha-sūtra-bhāṣya—[VII] i. 8.
Govinda Bhatta—[I] i. 455; [VII] i. 82; [XXII] ii. 371. [*Parāśara-Bhāṣya*].
Govinda-manās-ollāsa—[I] i. 474; [XI] ii. 7, 10, 22.
Govindarāja—[II] ii. 108.
Gotamīya-tantra—[XI] ii. 34.
Gauṛāḥ—[IV] ii. 149, 217; [VII] i. 94; [XI] ii. 12, 25 (2), 30; [XXVI] i. 143 (2)].

Caṇḍeśvara—[I] i. 460; [X] ii. 125 [Ratnākar].
Caturbhuja Bhaṭṭācārya [IV] ii. 136.
Chandog-ācāra-kṛtya—[IV] ii. 170.
Chandog-āhnika—[I] i. 435, 459; [VII] i. 14.
**Chandoga-śrāddha-tattva*—[VII] i. 9; [XXVII] ii. 271.

**Jalāśay otsarga-tattva*—[XXIII] i. 222.
Jaya-svāmī—[I] i. 452.
Jikana—[I] i. 448, 484; [IV] ii. 133 (2); [IX] i. 42. [*Antyeṣṭhi-vidhi-anumaraṇa-viveka*].
Jitā-mitra—[XI] ii. 25.
Jīmūtavāhana—[I] i. 448, 473 (2), 489; [II] ii. 109; [V] i. 286; [VII] i. 15, 92; [IX] i. 85; [X] ii. 117, 119, 122; [XI] ii. 3, 9, 12, 16, 20, 22, 26, 27, 28, 29, 49, 55, 57. [*Kāla-viveka, Dāya-bhāga, Vyavahāra-mātṛkā*].
Jyotiḥ-kāla-kaumudī—[I] i. 477.
Jyotiḥ-kaumudī—[XVIII] ii. 349.
Jyotiḥ-sāra-saṅgraha—[VI] ii. 78; [XX] i. 357, 360.
Jyotiḥ-siddhānta—[I] i. 452.
Jyotiṣ-ārṇava—[IX] i. 47.
**Jyotiṣ-tattva*—[I] i. 448; [XXIV] ii. 265.
Jñānamālā—[I] i. 453; [XI] ii. 38, 39; [XXII] ii. 370; XXIII] i. 246.

Ḍhuṇḍhu-paddhati—[XXVI] i. 136.

Tattva-kaumudī (philosophical) [IX] i. 53.
Tattva-sāgara—[VII] i. 66; [XXII] ii. 370.
**Tithi-tattva*—[I] i. 481, 488; [XI] ii. 4, 52; [XXIV] ii. 237, 245, 248.
Tithi-viveka—[I] i. 448; [IV] ii. 190; [VII] i. 3, 4; [VIII] i. 31; [XI] ii. 14, 25; [XIII] ii. 300.
Tīrtha-kāṇḍa-kalpa-taru—[IV] ii. 158; [XI] ii. 46; [XXV] ii. 319.
Tīrtha-cintāmaṇi—[V] i. 295, 296; [VI] ii. 75; [VII] i. 24; [XXVI] i. 191.
Tripurā-sāra-samuccaga—[IX] i. 49.

[*Dākṣiṇātyāḥ*—[I] i. 429, 451; [III] i. 509; [IV] ii. 154; [VI] ii. 78; [IX] i. 55; [XXVI] i. 143 (2).
Dāna-kalpa-taru—[IV] ii. 192; [XXVI] i. 126, 155 (*Dāna-Kāṇḍa*).
Dāna-khaṇḍa—[I] i. 482 (Hemādri); [XX] i. 394.
Dāna-darpaṇa—[III] i. 525; [IV] ii. 140; [VII] i. 98.
Dāna-ratnākara—[IV] ii. 158; [V] i. 283; [X] ii. 120.
Dāna-vākyāvalī—[VI] ii. 76.
Dāna-sāgara—[I] i. 460; [IV] ii. 192, 201, 203; [XI] ii. 24; [XXII] ii. 372; [XXIII] i. 207.
**Dāya-tattva*—[VI] ii. 70.
Dāya-bhāga—[I] i. 463, 465; [II] ii. 98, 99, 100(2), 109; [IV] ii. 192, 212.
Dīpa-kalikā—[I] i. 434, 492; [II] ii. 98, 109; [IV] ii. 166, 172, 173, 174, 177; V] i. 319, 321; [VI] ii. 61, 63, 64, 76; [VII] i. 76; [IX] i. 53; [X] ii. 126 (2); [XXIII] i. 269; [XXVI] i. 130, 143, 155.
**Divya-tattva*—[II] ii. 96.
[*Śuddhi-*] *Dīpikā*—[I] i. 436, 438, 453, 468, 470, 471, etc...; [III] i. 507, 509,

512, 540, 543(2); [IV] ii. 150; [VI] ii. 69; [VII] i. 92, 101; [XII] ii. 290, 291; [XVII ii. 284; [XVIII] ii. 350; [XX] i. 348(2), 356, 360, 379, 380, etc..; [XXII] ii. 370.

**Durgā-pūjā-tattva*—[VII] i. 59.

Durgā-bhakti-taraṅginī [IX] i. 42, 52, 55, 59, 64, 65(2).

Durga-bhakti-prakāśa—[IX] i. 55.

**Deva-pratiṣṭhā-tattva*—[XVIII] ii. 359.

Devabodha—[IV] ii. 132.

Daivajña-manohara—[I] i. 442; [XX] i. 329, 418.

Dvi-rūpa-koṣa – [X] ii. 125.

Dvaita-nirṇaya—[I] i. 436, 458, 463, 476, 486. 489; [IV] ii. 176, 206; [VI] ii. 65; [VII] i. 26, 107; [VIII] i. 26; [IX] i. 41; [XI] ii. 23, 24, 50; [XII] ii. 289, 291; XIII] ii. 299; [XXVI] i. 180, 191.

Dvaita-nirṇay-āmṛta—[II] ii. 96.

Dhanañjaya—[III] i. 512; [IX] i. 42. [*Sambandha-viveka-pariśiṣṭa*].

Dharmmu-koṣa—XXIII] i. 228, 252.

Dharmma-pradīpa—[IV] ii. 212.

Dhavala—[VII] i. 36.

Narasimha or Nṛsiṁha Ācārya —[VII] i. 80; [XXIV] ii. 258.

Navya-Varddhamān-opadhyāya [I] i. 462, 463, 468, 469, 470, 472, 485; [IV] ii. 189, 190; [VII] i. 11, 19, 35, 78, 119(2); [X] ii. 125; [XII] ii. 289; [XXI] ii. 230; [XXIII] i. 208, 228, 252, 253, 257; [XXVI] i. 136, 142, 156(2), 164, 176, 186. *See* Varddhamāna.

Nārāyaṇa Bhaṭṭa Mahāmahopādhyāya—[I] i. 429, 432, 481; [III] i. 496, 49 , 505, 519, 524(2), 528, 530, 543; [IV] ii. 140, 153, 185, 189; [VI] ii. 67, 72(2), 74; [VII] i. 8, 100, 103; [IX] i. 60, 63; [XI] ii. 4, 17, 18, 38, 53; [XIII] ii. 300, 301, 303, 306(2), 315; [XVIII] ii. 353; [XXIII] i. 240; [XXIV] ii. 237; [XXVI] i. i. 130. 138, 153(2). [*Gobhila-bhāṣya*].

Nārāyaṇa-*paddhati*—[XX] i. 360, 379.

Nirṇay-āmṛta—[I] i. 491; [IV] ii. 188; [VII] i. 11(2), 19; [VIII] i. 33; [XXIV] ii. 252; [XXVI] i. 176(2), 197.

Naiyatakālika-kalpa-taru—[IV] ii. 210; [VII] i. 72; [IX] i. 45; (XI) ii. 3; [XXIII) i. 226; [XXVI] i. 143.

Nyāya-ratna—[I] i. 472 (3), 476.

Paṇḍita-sarvvasva—[V] i. 313.

Pañca-ratna—[XI] ii. 41.

Parāśara-bhāṣya—[I] i. 454; [VI] ii. 62, 70; [VII] i. 39, 82; [XI] ii. 53; [XXII] ii. 371; [XXIII] i. 204.

Pariśiṣṭa-dīpa-kalikā—[IV] ii. 210.

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Śrīpati-*vyavahāra-samuccaya*—[III] i. 532; [VII] i. 15.
Śrīpati-*samuccaya*—[XX] i. 341, 355.
Śrīpati-*saṁhitā*—[I] i. 478; [XX] i. 360, 390.
Ṣaḍunnaya-mahātantra—[XXII] ii. 372.
Saṁkṣipta-sāra—[XI] ii. 45.
Saṅketa-kaumudī—[XX] i. 355.
Samaya-prakāśa—[I] i. 436, 446, 451, 460, 488, 489, 492; [IV] ii. 189, 190; [VII] i. 92 (2); [XXVI] i. 158.
Samaya-pradīpa—[I] i. 483; [XI] ii. 25.
Samudra-kara—[I] i. 435; [IV] ii. 173; [VII] i. 80, 112, [XI] ii. 9; [XXIII] i. 205, 209, 215 (2), 236; [XXVI] i. 126, 140, 146. [*Śrāddha-sūtra-bhāṣya*].
Sambandha-viveka—[III] i. 511; [IV] ii. 157; [VI] ii. 79.
Sambandha-viveka-pariśiṣṭa—[III] i. 512.

Samvatsara-pradīpa—[I] i. 437, 449, 488 (2); [IV] ii. 182. 212 [VII] i. 21, 26, 28, 30, 36, 67, 68, 80, 83, 91, 93, 96, 98, 99, 101, 102, 104 (2), 105 (2); [VIII] i. 26, 28, 30; [IX] i. 43; [XI] ii. 2, 4, 22, 34, 36, 42, 43, 44, 46; [XX] i. 413; [XXIV] ii. 240; [XXVI] i. 158; [XXVII] ii. 277.

* *Saṁskāra-tattva*—[XIII] ii. 306, 309.

Saralā—[I] i. 433, 475; [III] i. 499, 504, 510, 515, 516, 517, 518 (2), 522, 526, 527, 533, 536; [IV] ii. 153, 210; [VI] ii. 72; [VII] i. 8; [XI] ii. 52; [XIII] ii. 306, 310 (2), 312, 313; [XXIII] i. 206.

Sāyanācārya—[XXVI] i. 171; [XXVII] ii. 277.

Sāra-saṅgraha—[I] i. 437, 454, 479; [XX] i. 386; [XXII] ii. 370.

Sārāvalī—[I] i. 481; [XX] i. 393.

Siddhānta-cintāmaṇi—[I] i. 439.

Siddhānta-śiromaṇi—[I] i. 438.

Siddhānta-sandarbha—[I] i. 438.

Sugati-sopāna—[IV] ii. 174, 211; [IX] i. 60 [XIII] ii. 301, 314.

Sūri-santoṣa—[VII] i. 70; [XI] ii. 31, 43.

Somaśekhara—[I] i. 475.

Smṛti-paribhāṣā or °*paribhāṣikā*—[VII] i. 71 [XI] ii. 48.

Smṛti-mahārṇava—[II] ii. 100.

Smṛti-ratnākara—[I] i. 488.

Smṛti-samuccaya—[V] i. 292 (2).

Smṛti-sāgara—[I] i. 477, 479; [II] ii. 495, 498; [V] i. 281, 307, 325; [IX] i. 48, 54, 65; [XXI] ii. 230.

Smṛti-sāgara-sāra—[I] i. 479; [V] i. 313, 316; [VII] i. 117.

Smṛti-sāra—[I] i. 431, 436; [IV] ii. 189; [VI] ii. 66; [XXIII] i. 227.

Smṛti-sāra-pradīpa—[IV] ii. 163.

Smṛty-artha-sāra—[I] i. 457; [VII] i. 112; [IX] i. 64; [XI], ii. 53; [XIV] ii. 366; [XXIII] i. 258; [XXVI], i. 124.

Svar-odaya—[III] i. 507; [XX] i. 356, 358, 374, 397.

Haridāsa-Tarkācārya—[IV] ii. 136, 173 (2).

Harinātha Upādhyāya—[IV] ii. 135; [V] i. 315; [VI] ii. 60, 62, 66; [XIX] i. 54; [XI] ii. 4, 25, 58. [*Smṛti-sāra*.]

Hari-bhakti—[XI] ii. 37; [XXIII] i. 239.

Hari-śarmmā—[I] i. 431; [III] i. 493, 494, 495 (2), 509, 511, 515, 536; [IV] ii. 150, 170, 174, 206, 207, 220; [VI] ii. 79; [IX] i. 67; [XIII] ii. 302 (2), 308; [XIV] ii. 363 (2), 364, 365 (2), 366; [XXIII] i. 203; [XXVI] i. 153; [XXVII] ii. 273, 277.

Harihara—[XVI] ii. 89; [XVIII] ii. 355; [XXVII] ii. 273.

Harihara-*paddhati*—[I] i. 432; [VI] ii. 73; [XIX] ii. 338; [XXIII] i. 252; [XXVI] i. 162.

Halāyudha—[I] i. 457, 470, 481; [II] ii 102, 109; [IV] ii. 182; [V] i. 278, 290 (2), 306, 313; [VII] i. 8; [IX] i. 65; [XI] ii. 3, 21, 22, 24, 26(2), 28 44; [XIII] ii. 314; [XIX] ii. 336; [XXIII] i. 228, 252;

[XXVI] i. 144, 152, 161, 191, 197 (2); [XXVII] ii. 273, 276. [*Paṇḍita-sarvvasva, Brāhmaṇa°, Śiva°*].

Halāyudha (grammarian)—[XXVI] i. 182.

Hāra-latā—[IV] ii. 133, 134, 140, 145 (2) 147, 151, 152 (3), 154, 155, 157, 161, 162, 171, 174, 176, 179, 180 (2), 183 (2), 184, 1`6, 187 (2), 188 (2) 189, 219, 220, 221, 223; [VI] ii. 60; [IX] i. 43; [XIII] ii. 300; [XXVI] i. 195.

Hārāvalī—[III] i. 509.

Hemādri:—[I] i. 434, 437, 438, 439, 456, 462, 476, 482, 485, 489; [IV] ii. 152, 188, 192, 198; [VI] ii. 62, 80, 81 (2); [VII] i. 10, 11, 19, 24, 30, 32, 33, 76; [XI] ii. 3, 20, 21 (2), 24, 26, 30, 49, 50; [XX] i. 394; [XXVI] i. 175, 176, 177, 179, 185 (2). [*Dāna-khaṇḍa, Pariśeṣa°*].

SEPTEMBER, 1915.

The Monthly General Meeting of the Society was held on Wednesday, the 1st September, 1915, at 9-15 P.M.

LIEUT.-COL. SIR LEONARD ROGERS, Kt., C.I.E., M.D., B.S., F.R.C.P., F.R.C.S., F.A.S.B., I.M.S., President, in the Chair.

The following members were present:—

Maulavi Abdul Wali, Mr. Percy Brown, Dr. P. J. Bruhl. Rai Monmohan Chakravarti, Bahadur, Dr. L. L. Fermor, Mr. F. H. Gravely, Mr. H. G. Graves, Mr. C. W. Gurner, Babu Ramesh Chandra Majumdar, Dr. Satis Chandra Vidyabhusana.

The minutes of the last meeting were read and confirmed.

Twenty-five presentations were announced.

The Honorary Secretary announced the following orders of the Council meeting held on the 28th July 1915 relative to the publications in the Bibliotheca Indica Series:—

(i) Any work before being accepted shall be reported on to the Council by the Philological Secretary as to—
   (*a*) whether the work is worthy of publication;
   (*b*) what manuscripts are available;
   (*c*) the qualifications of the editors to undertake the work;
   (*d*) the extent and approximate cost and time required for completion of the work;
   (*e*) specimen pages including editorial notes.

(ii) The Philological Secretary to consult independent experts if he considers it advisable.

(iii) The manner of remuneration, when the work is paid for, to be determined by the Council on special information with regard to the nature of the work.

(iv) The Council may, if necessary, refer any work to a special Committee for consideration.

(v) No part to be published until such substantial portion as the Council may order has been completed and passed for publication by the Council on the report of the Philological Secretary.

The above resolutions with regard to both the Arabic and Persian and the Sanskrit publications of the Bibliotheca Indica to be printed as byelaws in the Rules of the Asiatic Society.

The General Secretary reported that Babu Pramatha Nath Mullick and Lieut.-Col. F. R. Ozzard had expressed a desire to withdraw from the Society.

The General Secretary reported the death of Babu Raj Chandra Chandra.

The following persons were balloted for as Ordinary Members:—

Babu Hem Chandra Das-Gupta, M.A., F.G.S., Prof., Presidency College, Calcutta, proposed by Dr. B. L. Chaudhuri, seconded by Babu Rakhal Das Banerji; *Miss Maude Lina West Cleghorn*, F.L.S., F.E.S., proposed by Dr. N. Annandale, seconded by Mr. F. H. Gravely.

The following papers were read:—

(1) *A Note on the Bengal School of Artists.—By* Babu S. Kumar. Communicated by Mahamahopadhyaya Haraprasad Shastri.

(2) *Notes on the Geography of Mediæval Orissa.—By* Rai Monmohan Chakravarti, Bahadur.

(3) *On the Genuineness of the Eighth Canto of the poem Kumara-Sambhavam.—By* Rai Monmohan Chakravarti, Bahadur.

These papers will be published in a subsequent number of the *Journal*.

The President announced that there would be no meeting of the Medical Section this month.

Notice.

Foreign Societies who favour the Asiatic Society of Bengal with their publications are informed that they may be sent either to the address of the Society at Calcutta, or to the Agent of the Society in London, Mr. Bernard Quaritch, 11, Grafton Street, New Bond Street.

Avis.

Les Sociétés étrangères qui honorent la Société Asiatique de Bengale de ses publications, sont priées de les envoyer ou directement à l'adresse de la Société, 1, Park Street, Calcutta, ou à l'agent de la Société à Londres, Mr. Bernard Quaritch, 11, Grafton Street, New Bond Street.

Anzeige.

Ausländische Gesellschaften welche die Asiatische Gesellschaft von Bengalen mit ihren Publicationen beehren, werden hierdurch ersucht dieselben entweder direkt an die Adresse der Gesellschaft, 1, Park Street, Calcutta, oder an den Agenten in London, Mr. Bernard Quaritch, 11, Grafton Street, New Bond Street, zu senden.

23. Contributions to the History of Smṛti in Bengal and Mithilā.

Part II. Mithilā.

By Rai Monmohan Chakravarti Bahadur.

Nothing is known about the early Smṛtic literature of Mithilā. According to tradition, the sage Yājñavalkya, the reputed author of the *Yājñavalkya-saṁhitā*, adorned the court of Janaka a king of this land. The extant version of the *Saṁhitā* from its metrical form, its mention of the coin Nānaka and of week-days and from other reasons is believed to be not earlier than the fourth century A.D.[1]

The mediaeval Smṛtic literature of Mithilā cannot be traced earlier than the thirteenth century. From that time for two centuries and a half, Smṛti flourished in Mithilā, flourished so luxuriantly that the writers came to be regarded as forming a separate school of Smṛti. But this distinction is doubtful. Their views, unlike the Bengal School, agree generally with those of the North Indian School, presenting very few differences, and those differences are merely on small minor points of Śrāddha and Ācāra. In fact the later Gauṛiyas by frequently criticising and discussing these Maithilis suggested the idea that they formed a separate school of North India, while really they cannot be called more than a sub-school of Smṛti.

Very little is known at present about these Maithili Smṛti-writers. In the present paper the subject will be dealt with chiefly from two points, firstly to ascertain the works of the notable Smṛti-writers, and secondly to ascertain their approximate times. Most of the principal writers appear to have been patronized by the kings of Mithilā. Hence a knowledge of the political history of the land would be useful in ascertaining the times of the writers, and my paper on that subject might be consulted for the purpose.[2] For facility of reference the writers will be discussed chronologically under two sub-heads :—

A. The Earlier Period, or the rule of the Karṇāṭa Dynasty.

B. The Later Period, or the rule of the Kāmeśvara Dynasty.

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[1] Jolly, Tagore Law Lectures, 1883, p. 49 (not earlier than the first century A.D.); ditto, the Sacred Books of the East, Vol. XXXIII, Introduction, p. xvii (not earlier than the 3rd century A.D.); Professor A. Macdonnell, *Sanskrit Literature*, p. 429 (about A.D. 350).

[2] See J.A.S.B., 1915, pp. 1–27.

The result of discussion of the times of the Maithili Smṛti writers is shown below in a tabular form:—

The Authors.		Their Approximate Times.
A. Karṇāta Dynasty.		
1. Graheśvara Miśra	..	Earlier than 14th century.
2. Gaṇeśvara Miśra	..	Ditto.
3. Śrīdattopādhyāya	..	End of the 13th century or beginning of the 14th.
4. Gaṇeśvara Ṭhakkura	..	Beginning of the fourteenth.
5. Caṇḍeśvara Ṭhakkura (nephew of No. 4)	..	First and second quarters of the 14th century.
6. Rāmadatta Ṭhakkura (son of No. 4)	..	Second quarter of the 14th.
7. Harināthopādhyāya	..	First half of the 14th.
8. Padmanābha Datta	..	Third and fourth quarters of the 14th.
B. Kāmeśvara Dynasty.		
9. Śrīdatta Miśra	..	Beginning of the 15th century.
10. Vidyāpati Upādhyāya or Ṭhakkura.		1395-1440 A.D.
11. Indrapati Ṭhakkura	..	Middle of the 15th century.
12. Lakṣmīpati Upādhyāya (pupil of No. 11)	..	Third quarter of the 15th.
13. Śaṅkara Miśra	..	Second and third quarters of the 15th.
14. Vācaspati Miśra	..	Third and fourth quarters of the 15th century.
15. Varddhamānopādhyāya (pupil of Nos. 14 and 15)	..	The latter part of the third and the fourth quarter of the 15th century.
16. Premanidhi Ṭhakkura (son of No. 11)	..	Fourth quarter of the 15th.
17. Rudradhara Upādhyāya	..	Ditto.
18. Gaṇapati	..	First quarter of the 16th century.

A. The Earlier Period.

1. GRAHEŚVARA MIŚRA.

His works are lost. But he is quoted twice in Caṇḍeśvara's *Vivāda-ratnākara* and no less than ten times in Varddhamāna's *Daṇḍa-viveka.*[1] He wrote a work on Vyavahāra which is

[1] The *Vivāda-ratnākara*, Bib. Ind. ed., pp. 46, 483; As. Soc. MS. of the *Daṇḍa-viveka*, pp. 44, 78, 88, 104, 105, 106 (3), 59 and 105 (व्यवहारतरङ्गे ग्रहेश्वर मिश्राः).

named in the *Daṇḍa-viveka* as *Vyavahāra-taraṅga*, and which probably formed part of a general digest. Having been quoted by Caṇḍeśvara as an authority his time must be earlier than fourteenth century A.D.

2. GAṆEŚVARA MIŚRA.

His works are lost. But he is quoted in the Ācāra section of Harīnāthopādhyāya's *Smṛti-sāra*, Vidyāpati's *Gaṅgā-vākyāvalī*, Vācaspati Miśra's *Śrāddha-cintāmaṇi*, and Gaṇapati's *Gaṅgā-bhakti-taraṅginī*.[1] From the references his work appears to have dealt with Acāra. Having been quoted as an authority in the *Smṛti-sāra*, his time is probably earlier than fourteenth century A.D.

3. ŚRĪDATTOPĀDHYĀYA.

He is the earliest Smṛti writer of Mithilā whose works have survived to modern times. At least five of his works are known, viz.:—

(*i*) The *Ācār-ādarśa*, the mirror of Ācāra, on the daily religious duties of a Vājasaneyin (white Yajurveda). This is a standard work for non-Sāmavedins, often quoted, and has been printed at Benares. Among the nibandhas, it quotes—

The *kalpa-taru* (1).
Kalpa-taru-kāra (3).
Kāma-dhenu (5).
Rājā (? Bhojadeva) (2)
Smṛti-mahārṇava (1).
Harihara (10)
Halāyudha-*nibandha* (4). Besides these he quotes his own *Chandog-āhnika* once.[2]

It is named in the *Śuddhi-viveka* of Rudradhara.

(*ii*) The *Chandog-āhnika*, on the āhnikas or daily duties of Sāmavedins.[3] It is quoted in his own *Ācār-ādarśa*, and mentions the following nibandhas and nibandha writers:—

Kalpa-taru (4).
Kalpa-taru-kṛt (2).
Kāma-dhenu (7).
Karmma-pradīpa (10).
Gopāla (1).
Chandoga-paddhati (1).
Bhūpāla (1).
Mitākṣarā (1).
Ratna-karaṇḍikā (1).
Rājā (? Bhojadeva) (3).
Śrāddha-kalpa (1).
Smṛti-mañjuṣā. *dakṣiṇadeśīya* [(3).
Smṛti-mahārṇava (1).
[*Smṛti-*]*mahārṇava-prakāśa* (3).

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[1] The *Smṛti-sāra* (I. O. *Cat.*, 1488, p. 449); the *Gaṅgā-vākyāvalī* (*Sans. Coll. Cat.* MS., II. No. 312), fol. 5*a*, 6*b*; the *Śrāddha-cintāmaṇi* (Benares pr. ed.), p. 9; and the *Gaṅgā-bhakti-taraṅginī* (Sans. Coll. *Cat.* MS., II. 323), fol. 6*b*, 7*b*, 9*a*.

[2] The *Ācār-ādarśa* (Benares pr., Saṁvat 1924), p. 31b:—एवं तु मंत्रपाठ इत्यादास (स्म) तु पञ्चनिरासविस्तारश्छन्दोगाह्निकेऽनुसंधेयः ।

[3] The Ind. Govt. MS. 2903, copied at Benares in Saṁvat 1664 or 1607 A.D.:—पौषशुक्लत्रयोदश्यां चंद्रे शुभयोगो काश्यां ॥ ... संवत् १६६४ ॥

It is named in the *Pitṛ-bhakti-taraṅginī* of Vācaspati Miśra, the *gṛhastha-ratn-ākara* of Caṇḍeśvāra, the *Gaṅgā-vākyāvalī* of Vidyāpati, and the *Gaṅgā-bhakti-taraṅginī* of Gaṇapati Śaṅkara Miśra wrote a supplement to it, the *Chandog-āhnik-oddhāra.*

(*iii*) The *Pitṛ-bhakti*, devotion to the Fathers, on the funeral ceremonies of Yajurvedins.[1] It was written after consulting the *Kātīya kalpa* with Karka's *Bhāṣya*, and the opinions of Bhūpāla and Gopāla (nibandhakāras). It is mentioned in the *Śrāddha-cintāmaṇi* of Vācaspati Miśra, and in the *Śrāddha-viveka* of Rudradhara as old (*prācīna*). It quotes—

Karka (1).
Karka-*bhāṣya* (2).
Kalpa-taru (4).
Kalpa-taru-kṛt (5).
Kāma-dhenu (6).
Gopāla (1).
Chandoga-śrāddha-kalpa (1).
Bhūpala (1).
Mitākṣarā (1).
Ratna-karaṇḍikā (1).
Rājā (? Bhojadeva) (3).
Śobhākara (1).
Smṛti-mañjarī (2).
Smṛti-mañjuṣā (1).
[*Smṛti-*]*mahārṇava-prakāśa* (1).
Halayudhīya *śrāddh-ādhyāya* (3).

(*iv*) The *Śrāddha-kalpa*, on the funeral ceremonies of the Sāmavedins. The title of the work is vague, as the term had been generally used in Vedic literature for the section dealing with Śrāddha. It was written in accordance with the views of Bhūpa and Gopāla.

(*v*) The *Samaya-pradīpa*, the lamp of time, an astrologico-smṛtic work dealing with vratas or optional fasts and their proper times.[2] A standard work on Vratas. It was often quoted, e.g., in the *Kṛtya-ratnākara* of Caṇḍeśvara (12 times), the *Pitṛ-bhakti-taraṅginī* of Vācaspati Miśra, the *Varṣakṛtya* of Rudradhara (11 times), the Mala-māsa and the Ekādaśī tattvas of Raghunandana. It quotes

Kalpa-taru (5).
Kalpa-taru-kāra (1).
Karmma-pradīpa (1).
Kāma-dhenu (1).
Jitāmitra (1).
Bhūpāla (2).
Yogīśvara (3).
Rājā (1).
Śrāddha-kalpa (2).
Śrāddhy-ādhyāya (1).
Harihara (4).

The Gauṛas, Gauṛa-grantha, Gauṛa-Smṛti and Gauṛa-nibandha have been several times referred to.

Śrīdatta gives no information of himself or of his family. It is not even known definitely whether he is a Maithili.

[1] See the Ind. Govt. MSS. nos. 5233 (copied in संवत् १८०६ शाके १६७१ समय फाल्गुण सुदि १५), and 5767, and the Deccan College MS., No. 152 of 1892-95.

[2] Deccan College MS. No. 371 of 1875-6.

But the facts that he is treated as an authority by the Maithili Smṛti-writers and their successors, the later Gauṛiyas, and that he mentions the Gauṛiyas several times in his works at a time when they were almost unknown in other parts of India indicate that his home was in Mithilā. He uses several vernacular words, which might furnish some clue.

His posterior limit is fixed by the quotations from his works in the *Ratn-ākara* and by the mention of his name therein. So he must be older than 1314 A.D. His upper limit is arrived at by his naming Harihara Miśra and quoting from Harihara's *Bhāṣyas.* Harihara is often mentioned in Hemādri's *caturvarga-cintāmaṇi* (Pariśeṣa-khaṇḍa), and is therefore older than the fourth quarter of the thirteenth cenatury. In his *Bhāṣyas* Harihara names the *Kalpa-taru*-kāra (first half of the twelfth century), and certain later commentators of *Pāraskara-gṛhya-sūtra*, such as Vāsudeva Dikṣita and Reṇu Dikṣita.[1] So at any rate Harihara cannot be later than the third quarter of the thirteenth century. Then Śrīdatta may be placed in the last decade of the same century, a contemporary of Hemādri.

In his grammatical *Paribhāṣā*, the well-known founder of the Supadma School, Padmanābha Datta, calls himself *Śrīdattātmaja-sūnunā.* If this Śrīdatta be identical with the Smṛti-writer then two generations intervened. Padmanābha Datta wrote the *Pṛṣodarā-vṛtti* in 1375 A.D. Consequently Śrīdatta cannot be earlier than the begining of the fourteenth century.

CAṆḌEŚVARA GROUP.

We now come to a family, several of whom wrote on Smṛti. Hence they are grouped together.

4. GAṆEŚVARA ṬHAKKURA.

Uncle of Caṇḍeśvara, and a minister (*mantri*) of Harasiṁhadeva. He wrote :—

(*i*) the *Sugati-sopāna*, steps to bliss, dealing with various kinds of gifts, Vaitaraṇī-dāna, Kāma-ghaṭa-dāna, Kāñcana-puruṣa-dāna, and so on. No references to older nibandhas found in the incomplete MS. I have come across.[2]

[1] The *Pāraskara-gṛhya-sūtra-vyākhyāna* of Agnīhotri Harihara, the Benares printed ed. of Bettia Rāj, pp. 6, 18, 277, 423. According to a note in the Deccan College *Catalogue*, p. 177, Reṇuka wrote his *Gṛhya-kārikā* in Śaka 1188 or 1266 A.D.

[2] Ind. Govt. MS. 6126, 26 folios only, while the Nepal MS. described in the Nepal *Notices* (p. 131) has 90 folios. The I. G. MS. begins with—

वेदस्मृतिपुराणादि दृष्ट्वा लोकहितैषिणा ।
कृतं सुगतिसोपानं श्रीगणेश्वर मन्त्रिणा ॥ [१॥]

5. CAṆḌEŚVARA ṬHAKKURA.

The dominating figure in the field of Maithili Smṛti. He is best known by his—

(*i*) *Smṛti-ratn-ākara*, or briefly *Ratn-ākara* (the sea), a general digest that consisted of seven sections as follows[1] :—

(*a*) *Kṛtya*, dealing with fasts, festivals and their appropriate times, in 22 taraṅgas or waves. Among the festivals may be specially mentioned the sarpp-ābhaya pañcamī vrata, or the worship of the goddess Manasā, held on Śrāvaṇa śukla pañcamī, and Buddha-dvādaśī vrata, or the worship of Buddha held on Śrāvana śukla dvādaśī. The last no longer exists and the former, though observed, has lost its old importance. The Ratha-yātrā was observed also with respect to Śiva on Pauṣa śukla aṣṭamī, and Durgā on Āśvina śukla navamī. The *Pujā kalpa-taru* of Lakṣmīdhara also describes the Ratha-yātrā of Śiva, Brahmā, and Durgā, and thus shows that in the old days the car-festival was common to the principal deities.

The *Kṛtya-ratn-ākara*[2] quotes a considerable number of later Smṛti works, e.g., the

Kalpa-taru (39 times).
Kalpa-taru-kāra (7).
Kāma-dhenu (7).
Gopāla (2).
Jñā-nibandha (1).
Bhūpāla (9).
Dāna-sāgara (25).
Deveśvara Dharmā-dhikaraṇika (1).
Pārijāta (36).
Murāri-rāja (1).
Yogīśvara (2).
Rāja-mārttaṇḍa (3).
Lakṣmīdhara (4).
Varṣa-dīpikā (1).
Vasanta-rāja (1).
Viveka (1).
Viśva-rūpa (1).
Vrata-sāgara (1).
Śesodatta (1).
Śrīdattopādhyāya (1).
Ṣaṭ-triṁśan-mata (2).
Samaya-pradīpa (12).
Skānda-yāmala (1).
Sāgara (20).
Smṛti-mahārnava-prakāśa-kāra (2).
Halāyudha (2).

[1] The seven sections of the *Ratn-ākara* are named thus in the *Vivāda-ratn-ākara*, end verse 3 (Bib. Ind. ed., p. 670), and the *Dāna-ratn-ākara*, end verse 3 (R. Mittra, *Notices* VI, p. 135) :—

श्रीकृत्यदानव्यवहारशुद्धि-
पूजाविवादेषु तथा गृहस्थे ।
रत्नाकरा धर्म्मभुवो निबन्धाः
कृतास्तुलापुरुषदेन सप्त ॥ [३॥]

[2] As. Soc. Bengal MS., copied in Saka 1739 or 1817 A.D. शकाब्दा १७३९ ... तारिख २१ आश्विनस्य ॥ in 185 folios, of which folios 180-184 are missing; and Ind. Govt. Maithili MS. No. 3604, 160 folios of corypha leaves; copied in La. saṁ 392 or 1511 A.D. लसं ३९२ प्रथम वैशाख वदि ९ शुक्रे वरश्रौलियामे लिखितमिदं पुस्तकमिति ॥

The above list shows that the *Kalpa-taru*, the *Dāna-sāgara*, the *Pārijāta* and the [*Smṛti-* ?] *sāgara* were chiefly quoted.

(*b*) The *Gṛhastha*, on the duties of a house-holder in 68 taraṅgas. The MS. I have come across is incomplete, containing the first thirty-three taraṅgas only.[1] It quotes the

Kalpa-taru (8).
Kalpa-taru-kāra (2).
Kāma-dhenu (1).
Pārijāta (18).
Mitākṣarā-kāra (3).
Rājā (? Bhojadeva) (1).
Lakṣmīdhara (10).
Śrīdatt-*āhnika* (2).
[*Smṛti-mahārṇava-*] *prakāśa*-kāra (5).
Smṛti-ratna-viveka (3).
Halāyudha (9), and besides these it mentions thrice his own *Kṛtya-ratn-ākara*.

(*c*) The *Dāna*, on various kinds of religious gifts not mentioned in his *Kṛtya-ratnākara*, in 29 taraṅgas.[2] The work professes to have been made after consulting the *Kalpa-druma*, the *Pārijāta* and the *Kāma-dhenu*. The references are few, among which may be mentioned :—

Kalpa-taru (1).
Kama-dhenu (1).
Dāna-sāgara (8).
Pārijāta (4).
Prakāśa (2).
Bṛhad-Yogīśvara (1).
Bhūpāla (7).
Bhūpāla-*paddhati* (1).
Medhātithi (1).
Mṛtyuñjaya (2).
Yogīśvara (2).
Lakṣmīdhara (1).
Sāgara (13).

(*e*) *Vivāda*, dealing with civil and criminal law in 100 taraṅgas. This work has been printed in the Bibliotheca Indica and has been translated into English by the Hon'ble Justice Digambara Chatterjea. It professes to contain the essence of the *Kalpa-druma*, the *Pārijāta*, Halāyudha's *nibandha* and the [*Smṛti-mahārṇava-*] *prakāśa*, besides other works. It forms the basis of the *Vivāda-cintāmaṇi* of Vācaspati Miśra, the *Vivāda-candra* of Misaru Miśra and the *Daṇḍa-viveka* of Varddhamāna, and was much used by other writers treating of law, such as the commentators of the *Dāya-bhāga* (Acyuta Cakravarttī, Raghunandana, Śri-Kṛṣṇa Tarkālaṅkāra), Raghunandana in his 28 tattvas, and so on. It contains a large number of quotations from authorities, and mentions the following late works, and writers of Smṛti :—

[1] The Ind. Govt. MS. 5459. It gives no date of its copying, but as it contains on the front page a chart of nativity with संवत् १७६९ मासे आश्विन शुदि ७ गुरौ रात्रौ पञ्चघटचानन्तरं, the copying must be older than Saṁvat 1769 or 1712 A.D. Another fragment of the *Gṛhastha* is in the Deccan College (No. 44 of 1883-4A). It has 63 folios (30, and 72-133), and contains the last twenty-three Taraṅgas, in fact all the latter sections except the last.

[2] The Deccan College MS. 114 of 1884-86.

Asahāya as quoted by *Prakāśa*-kāra (1).
Udayakara in *Manu-ṭīkā* (4).
Kalpa-taru (21).
Kalpa-taru-kāra (4).
Kāma-dhenu (6).
Graheśvara Miśra (2).
Pārijāta (50).
Bhāguri, the *Vṛtti*-kāra (1).
[*Manu*-]*Bhāṣya*-kāra (1).
Mitākṣarā (7).
Mitākṣarā-kāra (3).
Miśrāḥ (1).
Medhātithi, quoted twice from the *Prakāśa* (7).
Lakṣmīdhara (11).
Smṛti-mahārṇava (1)
[*Smṛti-mahārṇava*-] *prakāśa* (22).
[*Smṛti-mahārṇava*-]*prakāśa*-kāra (25).
Harihara (3).
Halāyudha-*nibandha* (3).

(*f*) The *Vyavahāra*, on legal procedure and evidence.[1] It is said to be an enlargement of the *Kalpa-druma*, the *Pārijāta* and the *Kāmadhenu* of Gopāla. The headings agree very nearly with those in the *Vyavahāra-kalpa-taru*.

(*g*) The *Suddhi*, on purification, in 34 taraṅgas.[1] This completes the digest. He compiled other works, viz.,—

(*ii*) The *Kṛtya-cintāmaṇi*,[2] astrological discussions of the saṁskāra and other religious observances, with the chapters called *prakāśas*. It was often quoted in later works and should be distinguished from the *Kṛtya-cintāmaṇi* of Vācaspati Miśra. In the introductory verses it mentions Garga, Varāhamihira, Bhojarāja, Śrīpati, Parāśara and others, Satya, Jīveśvara.

(*iii*) The *Dāna-vākyāvalī*,[2] describing the prayogas (rites) and mantras in connection with religious gifts. It seems to be a supplement to his *Dāna-ratn-ākara*. It mentions the *Kalpa-taru* (3), the *Kāma-dhenu* (1), the *Dāna-kāṇḍa* (of the *Kalpa-taru*), the *Dāna-sāgara* (1), besides his own *Dāna-ratn-ākara* (once).

(*iv*) The *Siva-vākyāvalī*,[2] a manual of Saiva worship. It is quoted in the *Varṣa-kṛtya* of Rudradhara.

6. RĀMADATTA ṬHAKKURA.

Son of Gaṇeśvara, and cousin of Caṇḍeśvara. Two of his compilations are as yet known.

(*i*) The *Vivāh-ādi-paddhati*,[3] a manual of the rites relating to the saṁskāras of the Vājasaneyins, which in some manuscripts

[1] For the *Vyavahāra*, see R. Mitra, *Notices*, VI, p. 66, No. 2036: for the *Suddhi*, do., VII, p. 149, No. 2384, and Ind. Off. *Cat.*, p. 412, No. 1389.

[2] For the *Kṛtya-cintāmaṇi*, Ind. Off. *Cat.*, p. 511, No. 1621: for the *Dānavākyāvalī*, Ind. Govt. MS. 5480 (33 folios) copied in Saṁvat 1612 or 1555 A.D. संवत् १६१२ वर्षे आषाढ़ वदि ७ भौमे लक्ष्मीनाथभट्टात्मजेन लोकनाथेनालेखि॥; and for the *Śiva-vākyāvalī*, Ind. Off. *Cat.*, VI, p. 1409, No. 3724.

[3] Sansk. Coll. *Cat.*, II. 306; for the description of the ancestors see fol. 10b-11a: *cf.* R. Mitra, *Notices*, III, p. 122, No. 1169.

begin with an additional section on the Ābhyudayika Śrāddha. Beyond a description of his ancestors, no references to *nibandhas* have been found. The manual is much used by non-Sāmavedins in Bengal and elsewhere.

(*ii*) The *Śoraṣa-mahādāna-paddhati*,[1] briefly the *Dāna-paddhati*, a manual treating of the sixteen great religious gifts such as tulā-puruṣa, etc. It quotes Bhūpāla at the end.

Family and Time.

We get the following facts about the family.[2] Devāditya was peace and war minister of the king Harasiṁhadeva. He had two sons, Vīreśvara and Gaṇeśvara. Vīreśvara was peace and war minister of the same king, and Gaṇeśvara his minister (*mantrī*). Caṇḍeśvara, son of Vīreśvara, became peace and war minister of the same king. He is said to have conquered Nepal, to have given large quantity of gold on the bank of the Vāgvatī river in the bright half of the month Sahasa (Mārgaśira) Śaka 1236 (1314 A.D.), and to have rescued the earth from the deluge of Mlecchas. Rāmadatta, son of Gaṇeśvara, was minister (*mantrī*) of the king Nṛsiṁha and a Mahāmahattaka too. The family relationship may be shown at a glance by a chart thus:—

Devāditya Ṭhakkura.
(Peace and war minister of Harasimhadera.)

(son) Vīreśvara (P. & W. Minister) — (son) Caṇḍeśvara (P. & W. Minister.)

(son) Gaṇeśvara (Minister) — (son) Rāmadatta (Minister of king Nṛsiṁhadeva.)

It is doubtful if a busy high officer like Caṇḍeśvara personally compiled the digest. Its very size, one section (the Vivāda) alone taking up 671 pages in print, and the extravagant praise bestowed on Caṇḍeśvara in the introduction and at the end prevent us from coming to this conclusion. His cousin Rāmadatta admits that his manual on Saṁskāras was completed by one Svāmī Ṭhakkura, and that his manual on gifts was compiled with the aid of Bhava Śarmman of Khaupā (uā ?) lavaṁśa. These high officers probably supervised the compilations prepared by some pandit or body of pandits, and were

[1] The Ind. Off. *Cat.*, p. 549, No. 1714.

[2] For Caṇḍeśvara and his ancestors see the introductory verses of the *Kṛtya-ratn-ākara*, and of the *Kṛtya-cintāmaṇi*, the end verses of the *Vivāda-ratn-ākara* and of the *Dāna-ratn-ākara*, besides the final colophons of the chapters of each work. For the traditional account, see J.A.S.B. 1904, Extra No., pp. 25-27.

naturally credited with the authorship. In modern times we have similar examples in the Bengali translation of the *Mahābhārata* passing under the name Kāliprasanna Siṁha of Calcutta; and going back earlier we find both Vidyāpati and Vācaspati Miśra attributing some of their own works to their patrons.

The allusion to Caṇḍeśvara having rescued the earth from the deluge of Mleccas probably refers to the march of the Delhi Sultān Ghiyās-ud dīn Tughlak through Tirhut in 1324 A.D.

The *Dāna-ratna-ākara*[1] which gives this information should therefore be later than 1324 A.D. Some of the other *Ratna-ākaras* (Vivāda) and the *Kṛtya-cintāmāṇi* mention his performance of the Tulā-puruṣa ceremony in Śaka 1236, and must be later than that date. It seems probable that his compilations were generally completed after A.D. 1314 and some part after 1324 A.D. They may be therefore placed roughly between 1315-30 A.D. His uncle Gaṇeśvara composed his work, the *Sugati-sopāna*, a little earlier, say in the beginning of the fourteenth century: while his younger cousin Rāmadatta compiled his work a little later, say in the second quarter of the same century.

Caṇḍeśvara influenced later writers considerably. The easy style, the extensive information and the up-to-date remarks of his compilations, backed by the high position of the family, at that time next to the king only in power, soon made the work the standard authority in Mithilā, and to some extent influenced even the later Gauṛiyās. This influence led to the gradual disuse of the older digests, such as the *Pārijāta*, the *Kāma-dhenu*, Halāyudha's *nibandha*, and even the *Kalpa-taru*. The compilations of several later digests and the composition of special treatises on various sections of Smṛti gradually led to the disuse of even the *Ratn-ākara* after the middle of the sixteenth century.

7. HARINĀTHOPĀDHYĀYA.

He wrote the *Smṛtī-sāra*, a general digest of Smṛti. It consists of two parts, viz.,—

(*a*) *Ācāra* which deals with the saṁskāras (eight according to the author),[2] āhnika or the daily duties of a twice-born, Śrād-

[1] R. Mitra, *Notices*. VI. p. 135, No. 2069, end verse 2:—

मग्ना म्लेच्छमहार्णवे वसुमती येनोद्धृता लीलया
विध्वस्तावनिवैरिणः क्षितिभुजां लक्ष्मीः समासादिता ।

[2] In the nibandhas, the number of Saṁskāras or periodical rites to be observed by a twice-born, varies. Harinātha takes them to be eight, the Gauṛiyās (Bhavadeva and Halāyudha) ten, the southerners (Devaṇṇa Bhaṭṭa and Śrīdhara) sixteen, and the *Mitākṣarā* forty-eight.

dha or funeral rites and Prāyaścitta or expiation.[1] It quotes a few later works and writers, such as the

Karmma-pradīpa (7).
Kalpa-taru (1).
Kāma-dhenu (8).
Gaṇeśvara Miśrāḥ (2).
Prakāśa (1).
Bhūpāla (1).
Yogīśvara (1).
Rājā (? Bhojadeva) (5.)
Vijñāneśvara (1).
Smṛti-mañjuṣā (1).
Harihara (4).

(*b*) *Vivāda*, which deals with civil or criminal law, and *Vyavahāra* or legal procedure and evidence, which includes a supplement on inheritance when son-less (*aputra-dhan-ādhikāraḥ*), according to Bālarūpa, the *Pārijāta*, the *Kalpa-taru*, Halāyudha and the *Smṛti-sāra* itself. The references to later authorities are still fewer in this part, viz., the *Kalpa-taru* (1), Bhavadeva-*nibandha* (1) under *Bhūkty-āpavāda*, the *Mitākṣarā* (1), Lakṣmīdhara (2), and Halāyudha (2). In the supplement Viśvarūpa (2) and Śrīkara (6) are quoted in the subsection of Bālarūpa, and Harihara and Medhātithi each once in the subsection of the *Pārijāta*. From the fact that the *Smṛti-sāra* itself has been quoted, the supplement would seem to have been compiled by some later writer.

The work has no introductory or final verses, and the author gives no information about himself. It is not even certain whether he is a Maithili at all. For the following reasons I have put him among the Maithilis. Firstly, the title *Upādhyāya* given to him in the final colophons is found mainly among the Maithili Brāhmans and survives in modern times abbreviated to Ojhā. Secondly, the *Smṛti-sāra* or its author is quoted as authority chiefly by the Maithilis and later Gauṛas, e.g., by Vācaspati Miśra in the *Vivāda-cintāmaṇi*, by Varddhamāna in the *Daṇḍa-viveka*, by Rudradhara in the *Śuddhi-viveka*, by Devanātha Thakkura in the *Adhikaraṇa-kaumudī*, and in Bengal by Śūlapāṇi in the *Durg-otsava-viveka*, by Śrīnātha in the *Śrādda-viveka-vyākhyā*, by Raghunandana (see the Index to his 27 tattvas), and so on. Thirdly he mentions in his Ācāra-section the Gauṛas generally such as *Gauṛāḥ*, *Gauṛīya-vacana*, *Gauṛa-nibandha*. The Gauṛas could have been quoted in that dark period only by their neighbours, the Maithilis, witness Śrīdattopādhyaya, and Caṇḍeśvara. Hence Harinātha appears to have been a Maithili.

His posterior date is fixed by Śūlapāṇi quoting his *Smṛti-sāra*.[2] So he must be older than fifteenth century A.D. He

[1] The As. Soc. MS. II. 40. A; *Ācāra*, pp. 1-130, *Vivāda*, pp. 1-70; and supplement, pp. 76-84.

[2] The *Durg-otsava-viveka*, Sans. College *Cat.*, MS. II, 335, fol. 11*a*:—
अथ सन्धिपूजा ॥ ० ॥ स्मृतिसारे । The oldest MS. found, a copy of the Vivāda

quotes Harihara several times, and so must be later than his time, the third quarter of the thirteenth century (s.v., Śrīdattopādhyāya). He does not quote from Caṇḍeśvara's works, and vice versa. Probably they were near contemporaries. His time may therefore be put in the first half of the fourteenth century.

8. PADMANĀBHA DATTA.

He is the author of the well-known grammar, the *Supadma*, and its various supplements. In his *Paribhāṣā* he speaks of having written an *Ācāra-candrikā* in Smṛti, which must be a compilation on the Ācāra section.[1] No MS. of the work has yet been found, and no quotations therefrom yet traced. He wrote it under the supervision of his father. It should be distinguished from the work of the same name by Gauṛīya Śrīnāthācārya-cūṛāmaṇi.

Padmanābha Datta's time is fairly well ascertained. He is son of Dāmodara Datta, who was son of Śridatta. One is tempted to identify his grandfather with Śrīdattopādhyāya the smṛti writer No. 3. Apart from this he himself says that he composed his *Pṛṣodar-ādi-vṛtti*, a part of his grammatical *Uṇ-ādi-vṛtti* in Śaka 1297 Caitra or 1375 A.D.[2] So his Smṛti work may be placed in the second half of the fourteenth century.

Padmanābha Datta is an early example of that wide diffusion of Sanskritic knowledge in Mithilā which formed the characteristic of the later Kāmeśvara period. In addition to various works on grammar, his forte, he composed a poem, the *Gopāla-carita*, a commentary on Śaṅkarācārya's poem *Ānanda-laharī* and one on Māgha's epic, a work on metres, the *Chando-ratna*, and a lexicon, the *Bhūri-prayoga*.

B. Later Period.

9. ŚRĪDATTA MIŚRA.

He wrote a *Paddhati* of Smṛti in several sections. Of these, one has survived, viz.,—

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section, is dated La. saṁ 363 or 1482 A.D. लसं ३६३ फाल्गुण सुदि (R. Mittra, *Notices*, V, p. 232, No. 1913).

[1] The *Paribhāṣā*. Ind. Off. *Cat.*, p. 244, No. 890; *cf.* the *Paribhāṣā-vṛtti-ṭīkā* of Rāmanātha Siddhānta, H. Shastri, *Notices*, Vol. I. p. 220. No. 223:—

छन्दोरत्नं छन्दसि च स्मृतावाचारचन्द्रिका ।
कोषे भूरिप्रयोगाख्य रचिता तातशासनः ॥ [६ ॥]

[2] The *Pṛṣodar-ādi-vṛtti* (H. Sastri, *Notices*, Vol. I, p. 225, No. 228) end verse 10:—

शाके शैलनवादित्ये चैत्रे मासि रवेः स्थितौ ।
द्विजेन पद्मनाभेन भाषासूत्रमिदं कृतम् ॥ [१० ॥]

(*a*) The *Eka-āgni-dāna-paddhati*,[1] dealing with gifts including great gifts like tulā-puruṣa.

(*b*) The *Puraścaraṇa-paddhati*, mentioned in (*a*), about preparatory or introductory rites.

(*c*) The *Āvasathy-ādhāna-paddhati* which Aufrecht has placed under Śridattopādhyāya is more likely to belong to the present writer. It probably dealt with the establishment of domestic fire according to Vedic rites.

Śrīdatta was son of Nageśvara Miśra, from whom he learnt Vaiśeṣika, Nyāya, Veda, grammar, poetry, astrology and other branches of knowledge. In the colophon Śrīdatta is given the title *āvasathika*, or one who had established the domestic fire formally according to the Śrauta-sūtra. Śrīdatta appears to have had a younger brother, Narasiṁha, whose son, Madhusūdana, wrote the astrological work *Jyotiḥ-pradīpāṅkura*,[2] and whose name (Narasiṁha) apparently appears in the final colophon of the Nepal MS. The following genealogical chart may therefore be drawn up:—

Nageśvara Miśra.
(of Māṇḍava-grāma)

Śrīdatta Miśra. — Narasiṁha Sarmmā = Ratnadevī.

(sons of Narasiṁha and Ratnadevī:) Govinda. Madhusūdana. Vāmadeva. Narahari.

Śrīdatta must be older than La. saṁ 299 or 1418 A.D. in which year the Nepal MS. of the *Ek-āgni-dāna-paddhati* was copied.[3] He was a contemporary of the king Devasiṁha with whose consent the above work was compiled. He must therefore be older than La. saṁ 293 or 1413 A.D., in which year Devasiṁha died. His time thus falls roughly in the beginning

[1] Nepal MSS. *Notices*. p. 129, introd. verse :—

सम्यक तातनगेश्वराद् वाङगुणाद् वैशेषिकान्विचिकी-
वेदव्याकरणान्यधीत्य निखिलं काव्यादिकं ज्योतिषम् ।
दातुः संसदि सम्मतो नरपतेः श्रीदेवसिंहस्य स
श्रीदत्तो वितनोति पद्धतिमिमामेकाग्निदानोचिताम् ॥ [१ ॥]

At the end of the MS., + + (पुर)श्चरणपद्धतौ सुप्रपश्चितुमेवास्माभि ...

[2] Ind. Off. *Cat.*, p. 1066 (No. 3004), where the end verses give the names of relations of Madhusūdana.

[3] Nepal MSS., *Notices*, p. 129. final colophon :—इति महामहोपाध्याय मिश्र श्रीनगेश्वरात्मजावसथिक + + + + + (महामहोपा) ध्यायश्रीश्रीदत्तपद्धतावेकाग्निविधिमहादानविधानं पूर्ण । समाप्तोऽयं ग्रन्थः । शुभमस्तु । लसं २९९ पौष शुदि ९ चन्द्रे महोपाध्यायश्रीनर ... (सिंहशर्म्म ?) महानुभावानामनुज्ञामवाप्य सरसायां वासमासाद्य श्रीधनेश्वरेण लिखितेयं पुस्तीति ।

of the fifteenth century. This is confirmed by the statement of Madhusūdana who wrote his astrological work while Dhīrasiṁha was ruling, and for Dhīrasiṁha we have got a date, La. saṁ 321. Śrīdatta being the elder uncle of Madhusūdana, more than a full generation (30 years) must have intervened, and this brings us to a date earlier than La-saṁ 291.

10. VIDYĀPATI UPĀDHYĀYA.

He wrote many works, of which the following were on Smṛti :—

(*i*) The *Gaṅgā-vākyāvalī*.[1] dealing with various rites and duties to be observed on the banks of the sacred river Ganges. It collects together quotations on the subject from the *Mahābhārata*, the *Rāmāyaṇa*, the *Chandoga-pariśiṣṭa*, the *Maitrāyaṇiya-pariśiṣṭa*, Yogi-Yājñavalkya, Purāṇas, Smṛti-kāras and others, among which may be mentioned the following :—

Kalpa-taru (3).
Kalpa-taru-kāra (2).
Kalpa-druma kāra (1).
Kāl-ottara (1).
Gaṇeśvara Miśra (2).
Gāṅgeya (6)
Chandog-āhnika (1).
Darpaṇa (1).
Pārijāta (1).
Bhoja-rāja (2).
Mitākṣarā (1).
Rāja-mārttaṇḍa (1).
[*Smṛti-mahārṇava*] *prakāśa* (1).
Smṛti-samuccaya (2).

It mentions Sapta-grāma as *Dakṣiṇa-Prayāga* and as *mukta-veṇi*,[2] and is herein followed by Vācaspati Miśra (*Tīrtha-cintāmaṇi*), Gaṇapati (*Gaṅgā-bhakti taraṅginī*) and Raghunandana (*Prāyaścitta-tattva*). It is quoted by Gaṇapati in the *gaṅgā-bhakti-taraṅginī*, by Śrinatha in the *Kṛtya tattv-ārṇava*, and by Raghunandana in several of his tattvas, while the author (*kāra*) is named by Govindānanda in the *Varṣa-kriyā* and the *Śuddhi-kaumudī*.

(*ii*) The *Dāna-vākyāvalī*, treating of the various kinds of religious gifts, and of their prayogas or ceremonies. The MS. I have come across has lost its first five folios out of 64.[3] In the remaining folios, it mentions the *Kalpa-taru* (1), the *Dāna-sāgara* (1), Bhūpāla (1), Bhoja-rāja (1), the *Ratnākara* (3), Lakṣmīdhara (1), and the *Sāgara* (8). It is quoted once by Raghunandana in the Vivāha tattva.

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[1] Sans. College MS. II. 322 (a fresh copy completed by the Librarian on 15th August 1897).

[2] Sans. College MS., II. 322, fol. 121*b*, 122*a* :—ततो दक्षिणप्रयागस्तु गङ्गातो यमुना गता। स्नानात्तत्राक्षयं पुण्यं प्रयाग इव लभ्यते ... तन्मुक्तवेणी सप्तग्राम इति प्रसिद्धि॥ (संकल्प अद्याक्षयपुण्यप्राप्तिकामो दक्षिणप्रयागे कारष्ये।

[3] Ind. Govt. MS. 5545 (Nāgri); *cf.* R. G. Bhandarkar's Rep. for 1883-4, p. 352, in which the MS. is dated Saṁvat 1539 or 1482 A.D.

(*iii*) The *Varṣa-kṛtya*, dealing with the fasts and festivals during the year. No MS. yet found. Quoted in Raghunandan's Mala-māsa tattva.

(*iv*) The *Vibhāga-sāra*,[1] the essence of partition, on inheritance and partition. It seems to follow the headings of the *Kalpa-taru* and the *Vivāda-ratnākara*.

Vidyāpati gives very little information of himself and none of his ancestors. In the end verse of the *Gaṅgā-vākyāvalī* and the *Dāna-vākyāvalī*, Vidyāpati called himself *sūri* or the learned. In Gaṇapati's *Gaṅgā-bhakti-taraṅginī* Vidyāpati is called *Upādhyāya*. In the final colophon of the MS. of the *Kāvya-prakāśa-viveka* copied by his order, Vidyāpati is described as *Sa-prakriya-sadupādhyāya-Ṭhakkura-Śrī-Vidyāpati*. According to tradition he belonged to the family of Caṇḍeśvara Ṭhakkura; but of this no authentic proof has been yet found.

One characteristic feature of Vidyāpati's works is that they were written under the patronage of one or other member of the royal family of Kāmeśvara; and in some instances the works were even attributed to them. The mention of these royal members has been found useful in my paper on the History of Mithīlā; so the works are noted below with the names of the royal member against each, chronologically arranged :—

(*i*) The *Kīrtti-latā*, mixed Sanskrit and Maithili poem in praise of Kīrtti-siṁha (and Vīrasiṁha).

(*ii*) The *Bhū-parikrama-grantha*, moral tales told to Baladeva during his travel to Janaka-deśa, by order of Devasiṁha (names his son Śivasiṁha).

(*iii*) The *Puruṣa-parīkṣā*, moral tales, by order of Śivasiṁha (expanded from No. ii).

(*iv*) The *Kīrtti-patākā*, an amatory poem in Maithīli, in the time of Śivasiṁha.

(*v*) The *Padāvalī*, Maithili songs about Rādhā and Kṛṣṇa, the work by which Vidyapati is best known, and on which his fame rests. A large number of the songs has at the end the names of Śivasiṁha and his queens, and a few of Devasiṁha and his queen. Occasional verses mention Bhogīśvara, Arjunasiṁha, Amarasiṁha, Rāghavasiṁha, and Rudrasiṁha.

(*vi*) The *Likhanāvalī*, on letter-writing, attributed to Rājā Purāditya who killed Arjuna(-siṁha).

(*vii*) The *Gaṅgā-vākyāvalī*, on the religious rites in connection with the Ganges, attributed to Viśvāsadevī, queen of Padmasiṁha.

(*viii*) The *Śaiva-sarvvasva-sāra*, on the essence of the Śaiva-worship, attributed to Viśvāsadevi.

(*ix*) The *Dāna-vākyāvalī*, on the religious gifts and their ceremonies, attributed to Dhīramatīdevī, queen of Narasiṁhadeva.

1 R. Mitra, *Notices*, VI, p. 67, No. 2037.

(*x*) The *Durgā-bhakti-taraṅginī*. on the pramāṇa and the prayoga of Durgā worship, composed under the patronage of Dhīrasiṁha, whose brothers Bhairavendra and Candrasiṁha are also named.

We have got two dates of Vidyāpati's time. Firstly, the date of the MS. of the *Kāvya-prakāśa-viveka* copied by his order, La. saṁ 291, Kārttika vadi 10 (no week-day) equal to 1410 A.D.; and secondly the date of the MS. of the *Bhāgavata-purāṇa* copied by Vidyāpati himself in La. saṁ 309 Śrāvaṇa śudi 15 Kuje, or 1428 A.D.

Apart from these, the kings named help us in finding out approximately the time of his literary activity. The earliest king, Kīrttisiṁha, must have lived after Rāmasiṁhadeva, of whom one date, Saṁvat 1446 or 1389 A.D., exists. Kīrttisiṁha's time therefore falls in the last decade of the fourteenth century. The latest king named is Dhīrasiṁha, of whom one date exists, La. saṁ 321, calculated to be 1437 A.D. So then Vidyāpati's literary compositions extend from about 1395 to 1440 A.D., or for about half a century. As he could not have completed any works before the age of 20, he must have lived to a pretty old age, beyond three score years and ten, the age sighed for by the Psalmists. In fact the pandits as a rule lived in those days to a good old age; and hence without putting themselves to any hurry or extra labour some of them, like Vācaspati Miśra and Raghunandana, could produce a large number of works.

Indrapati Group.

In the second half of the fifteenth century we come across several workers more or less connected with one another. One such group was of Indrapati who with his father Rucipati and son Premanidhi formed a learned family, and who had also a learned pupil, Lakṣmīpati.

11. INDRAPATI ṬHAKKURA.

He wrote the *Mīmāṁsā-rasa-palvala*,[1] the pool of Mīmāṁsā water, on the philosophy of religious rites, composed for the ignorant of Mithilā. It applies the rules of Mīmāṁsā philosophy to settle the truth and the nature of various Smṛtic rites, vrata, Śrāddha, yāga, dāna, etc.

12. PREMANIDHI ṬHAKKURA.

He compiled a digest of smṛti, the *Dharmm-ādharmma-prabodhinī*,[2] the understanding of right and wrong. It was

1 R. Mitra, *Notices*, V, 281, No. 1959.
2 Do. do. VI, 18, No. 1999.

divided into twelve adhyāyas (chapters), Ācāra, Pūjā, Śrāddha, Aśauca, Śuddhi, Saṁskāra, Dāna, Sādhāraṇadharmma, Jātiviveka, Vrata, Tīrtha, Rājadharmma, Vyavahāra, Prāyaścitta. Prakīrṇaka (miscellaneous).

13. LAKṢMĪPATI UPĀDHYĀYA.

He completed the *Śrāddha-ratnam*,[1] a manual of funeral ceremonies for the Sāmavedins and Vājasaneyins. It was based on Śrīdatta's works.

Their Relationship and Time.

As regards their relationship,[2] Indrapati says he was son of Rucipati (sūri) and Rukmiṇīdevi, and this Rucipati is evidently to be identified with Rucipati Upādhyāya who wrote a commentary on the drama *Anargha-Rāghava* under the patronage of Bhairavasiṁhadeva. Indrapati learnt Jaimini Siddhānta (Mīmāṁsā) of his guru Gopāla Bhaṭṭa. Premanidhi calls himself son of Maithila Ṭhakkura Indrapati, while Lakṣmīpati calls Indrapati his guru. Premanidhi adds that the family had formerly lived at Māhiṣmati in Śrīmad-rāja-Nizām-shāha Viṣaya.

As regards their time, Premanidhi completed his work on Saṁvat 1410, Mārga bright half 6, Bhṛgu-vāsare. The Saṁvat here should be Śaka saṁvat as Vikrama saṁvat was not in use in Mithilā, and the dominion of Nizam Shahi dynasty named by him was not formed before 1480 A.D. Premanidhi therefore completed his work in 1488 A.D. For Lakṣmīpati, a MS. of Udayana's *Tātparya-pariśuddhi* was copied by his order on La. saṁ 339, Bhādra sudi 6 Kuje, or in the year 1458 A.D.[3] His guru Indrapati should be earlier than this, but not much earlier, as his father Rucipati wrote under the patronage of Bhairavasiṁhadeva who began to rule after Dhīrasiṁha, of whom we have got a date, La. saṁ 321 or 1437 A.D. Indrapti flourished therefore about the middle of the fifteenth century, Lakṣmīpati in the third quarter, and Premanidhi in the fourth quarter of the same century.

14. ŚAṄKARA MIŚRA.

He is known best by his works on the Vaiśeṣika philosophy. But he wrote also on Smṛti as follows :—

[1] R. Mitra, *Notices*, VI, p. 52, No. 2026.

[2] For family relationship, see the introductory verses and the final colophons of the works named: for Rucipati, see the Nirṇaya-Sāgara Press ed. of the *Veṇisaṁhāra nāṭakaṁ*.

[3] Nepal MSS. *Notices*, p. 31.

(i) The *Chandog-āhnik-oddhāra*,[1] the recovery of the Āhnika rules of the Sāmavedins, specially of those who have not kept up any domestic fire. It seems to be a supplement of Śrīdatta's work, and is quoted by Raghunandana in the Āhnika tattva.

(ii) The *Prāyaścitta-pradīpa*,[2] the lamp of expiations, a discussion of the various rules of expiations.

(iii) The *Śrāddha-pradīpa*,[3] the lamp of funeral ceremonies, a discussion of the rules of funeral. It should be distinguished from the work of the same name by Varddhamāna.

The invocatory verse in the very beginning and the final colophon, in which Śaṅkara Miśra calls himself son of Bhavanātha, identify the smṛti writer with the philosopher. He must be older than Śaka 1410 (1488 A.D.), in which year a MS. of Udayana's *Nyāya-vārtika-tātparya-ṭīkā* was copied at the *Caupāḍi* (ṭol) of Mahāmahopādhyāya-sanmisra-Śrīmac-Chaṅkara at Sarṣapagrama.[4] As the guru of Varddhamāna Upādhyāya, he should be about a generation older. His time thus falls roughly in the second and third quarters of the fifteenth century.

7. VĀCASPATI MIŚRA.

The most prominent Smṛti-writer in the second half of the fifteenth century. He was a prolific author. In the *Pitṛbhakti-taraṅgiṇī*, the latest of his extant works, towards the end he says that having composed in his youthful days ten works in the Śāstra (darśana-śāstra?), and thirty works (nibandhas) in Smṛti, now in his old age, he has made this (treatise).[5] Several of these works are lost, but I have been able to trace out some twenty works of his in Smṛti, and some four works in philosophy. A number of the works have the suffix *cintāmaṇi* to their names, and a few have the suffix *Nirṇaya*. Accordingly for facility of reference the smṛti works will be grouped alphabetically under three heads:—

(α) Works with the title *Cintāmaṇi*.
(β) Works with the title *Nirṇaya*.
(γ) Miscellaneous.

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[1] R. Mitra, *Notices*, VI. p. 9, No. 1989.
[2] Do. do. V. p. 286, No. 1965.
[3] Do. do. VII. p. 191, No. 2430.
[4] Nepal MSS., *Notices*, p. 49.
[5] The *Pitṛ-bhakti-taraṅgiṇī* (Ind. Govt. MS. 896, fol. 81*a*), verse 3 at the end of the last section but one:—

शास्त्रे दश स्मृतौ त्रिंशन्निबंधा येन यौवने ।
निर्मितास्तेन चरमे वयस्येष विनिर्ममे ॥ [३ ॥]

(*a*) *The Cintāmaṇi Group.*

(i) The *Ācāra-cintāmaṇi*,[1] on the daily rites of the Vājasaneyins, including the daily worship of deities. It is quoted by Raghunandana in the Mala-māsa, Tithi, and Āhnika tattvas.

(ii) The *Āhnika-cintāmaṇi*, on the daily rites of a twice-born generally. No MS. yet found. Quoted in his *Śuddhi-cintāmaṇi*, and by Raghunandana in the Ekādaśī and Āhnika tattvas.

(iii) The *Kṛtya-cintāmaṇi*,[2] dealing with the festivals of the year. It quotes the—

Kalpa-taru (1).
Kul-ārṇava (1).
Durgā-bhakti-taraṅgiṇī (1).
Bhāsvati (1).
Bhoja-rāja (1).
Muṇḍa-mālā-tantra (1).
Rāja-mārttaṇḍa (1).
Rāma-ārcana-candrikā (1).
Vyavahāra-mātṛkā (1).
Smṛti-sāgara (1).
Smṛti-sāra (1).
And mentions his own works, the *Dvaita-cintāmaṇi*, the *Śuddhi-cintāmaṇi*, and the *Śrāddha-cintāmaṇi*.

It should be distinguished from the astrological work of the same name by Caṇḍeśvara.

(iv) The *Tīrtha-cintāmaṇi*,[3] describing the five sacred places, Prayāga, Puruṣottama (with Bhuvaneśvara), Gayā, the Ganges, and Benares, and the various ceremonies to be observed there when on pilgrimage. It is based on the *Mahābhārata*, and the *Purāṇas*, while the *Kṛtya-kalpa-druma*, the *Pārijāta*, the *Ratn-ākara*, and others were consulted.

It is quoted by Gaṇapati in his *Gaṅgā-bhakti-taraṅgiṇī*, and by Raghunandana in the Prāyaścitta, Vivāha, Tithi and Śāma-śrāddha tattvas.

(v) The *Dvaita-cintāmaṇi*, on doubtful points of smṛti. No MS. yet found. Quoted in his own *Kṛtya-cintāmaṇi*.

(vi) The *Nīti-cintāmaṇi*, on the kingly duties. No MS. yet found. Quoted in his *Vivāda-cintāmaṇi*.

(vii) The *Vivāda-cintāmaṇi*,[4] dealing with civil and criminal law. It is based on the *Vivāda-ratn-ākara*, the Vivāda section of the *Vyavahāra-kalpa-taru*, and the *Pārijāta*. It mentions the—

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1 R. Mitra, *Notices*, V. p. 169, No. 1857, dated La. saṁ 433 or 1552 A.D.

2 The *Kṛtya-cintāmaṇi* printed in Bengali at Benares (Śaka 1814).

3 The *Tīrtha-cintāmaṇi* is being printed in the Bib. Ind. series.

4 The *Vivāda-cintāmaṇi* was printed in Calcutta (Śaka 1759) and translated into English by Babu Prosunno Kumara Tagore.

Kalpa-taru (3).
Gṛhastha-ratn-ākara (1).
Pārijāta (6).
Bālarūpa (2).
Bhāṣya-kāra (1).
Medhātithi (1).
Ratn-ākara (15).
Lakṣmīdhara (1).
[*Smṛti-mahārṇava-*] *prakāśa* (4).
[*Smṛti-mahārṇava-*] *prakāśa*-kāra (1).
Smṛti-sāra (3).
Smṛti-sāra-kāra (1).
And mentions his own *Nīti-cintāmaṇi*.

It is quoted by Raghunandana in the Dāya, Śuddhi and Vivāha tattvas, and in his commentary on Jīmutavāhana's *Dāya-bhāga*.

(viii) [1] The *Vyavahāra-cintāmaṇi*, on legal procedure and evidence. It is based on the *Vyavahāra-ratn-ākara*, and the *Vyavahāra-kalpa-taru*, and is in four pādas, bhāṣā (plaint), uttara (written statement), kriyā (procedure), and nirṇaya (decision and decree). It quotes the—

Kalpa-taru (1).
Pārijāta (4).
Bhavadeva (5).
Mitākṣarā (2).
Mitākṣarā-kāra (1).
Ratn-ākara (2).
Rājā (? Bhojadeva) (1).
Lakṣmīdhara (1).
Viveka (1).
[*Vyavahāra-*] *pradīpa* (7).
Smṛti-samuccaya (1).
Halāyudha (5).

It refers to *Prāñcāḥ* (the Eastern), the *Navyāḥ* (the modern) and is quoted by Raghunandana in the Dāya, and Prāyaścitta tattvas.

(ix) The *Śuddhi-cintāmaṇi*,[2] on purification. It quotes among others—

Aniruddha (1).
Kalpa-taru (3).
Kalpa-taru-kāra (2).
Pārijāta (4).
Pradīpa (2).
Bhoja (1).
Bhavadeva Bhaṭṭa (2).
Mitākṣarā (4).
Vācaspati (1), in the lexicon *Śabda-mahārṇava*.
Viśva-koṣa (1).
Śuddhi-sāra (1).
Sugati-sopāna (2).
Smṛti-darpaṇa (9).
[*Smṛti-mahārṇava-*]*prakāśa*(1).
Smṛti-samuccaya (1).
Smṛti-sāgara (1).
Smṛti-sāra (1).
Harihara (1).
Hāra-latā (2).
Hāra-latā-kāra (1).
And mentions his *Āhnika-cintāmaṇi*.

It is quoted in his own *Kṛtya-cintāmaṇi*, and by Raghunandana in the Śuddhi and Vivāha Tattvas.

(x) The *Śūdr-ācāra-cintāmaṇi*,[3] on the daily duties of a

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[1] For the *Vyavahāra-cintāmaṇi*, see the Sans. Coll. MS. II, 137.
[2] The *Śuddhi-cintāmaṇi*, printed at Benares in Bengali (Śaka 1814).
[3] R. Mitra, *Notices*, VI, p. 22, no. 2001, copied La. saṁ 425 or 1544 A.D.

Śudra. This appears to be a supplement to his *Ācāra-cintāmaṇi* which was meant for the twice-born.

(xi) The *Śrāddha-cintāmani*,[1] on funeral ceremonies. This is a standard work on the subject. It is quoted in his *Kṛtya-cintāmaṇi*, and often by Raghunandana and Govindānanda. It quotes—

Asahāya (1).
Ācāra-pradīpa (1).
Udayakara (1).
Karkka (1).
Karmma-pradīpa (1).
Kalpa-taru (16).
Kāla-viveka (2).
Kāl-ādarśa (1).
Kṛtya-cintāmaṇi (1).
Gaṇeśvara-Miśrāḥ (1).
Govinda-rāja (1).
Pariśiṣṭa-ṭīkā (2).
Pariśiṣṭa-prakāśa (2).
Pārijāta (15).
Pitṛ-bhakti (6).
Prakāśa (1).
Prakāśa-kara (4).
Pradīpa (6).
Pradīpa-kṛt (1).
Bṛhat-pārijāta (3).
Bhīma-parākrama (1).
Bhoja-rāja (1).
Manu-ṭīkā (1).
Mitākṣarā (2).
Medhātithi (4).
Rāja-mārttaṇḍa (1).
Rājā (1).
Lakṣmīdhara (2).
Varddhamānopādhyāya (3).
Viveka (3).
Śrāddha-kalpa (1).
Śrāddha-kalpa-cintāmaṇi (1).
Śrāddha-pallava (8).
Śrāddha-pañji (1).
Śrāddha-viveka (18).
Srīdattopādhyāya (1).
Śmṛti-paribhāṣā (1).
Harihara-Miśra (4).
Harihara-*paddhati* (3).
Halāyudha (5).
Besides *Prāñcāḥ*, *Prācām*, and *Navyāḥ*.

(B) *The Nirṇaya Group.*

(xii) The *Tithi-nirṇaya*,[2] on the doubtful points of Smṛti in connection with lunar days (tithis).

(xiii) The *Dvaita-nirṇaya*,[3] the ascertainment of doubtful or disputed points in Smṛti. It is quoted by Gaṇapati in the *Gaṅgā-bhakti-taraṅgiṇī*, by Raghunandana (20 times) and by Govindānanda who calls it Maithila to distinguish it from other works of the same name. It was commented upon by Gokulanātha (*Dvaita-nirṇaya-pradīpa*).

(xiv) The *Mahādāna-nirṇaya*[4] deals with the sixteen great gifts.

(xv) The *Vivāda-nirṇaya*,[5] on points of civil and criminal law.

[1] The *Śrāddha cintāmāṇi* printed in Bengali at Benares (Śaka 1814).
[2] R. Mitra, *Notices*, V, p. 149, No. 1839.
[3] Do. do. V, p. 296, No. 1973 (No. 275 incomplete).
[4] Nepal MSS., *Notices*, p. 122.
[5] Do. do. p. 90.

(xvi) The *Śuddhi-nirṇaya*,[1] on purification due to religious impurities, death, birth, etc.

(γ) *Miscellaneous.*

Excepting the *Kṛtya-mahārṇava*, all the works under this head are small in size, dealing with one or few points of Smṛti only.

(xvii) The *Kṛtyā-mahārṇava*, dealing with the fasts and festivals of the year and discussing the proper times thereof.[2] The [*Smṛti-*] *Mahārṇavas* were seven in number, Kṛtya, Ācāra, Vivāda, Vyavahāra, Dāna, Śuddhi, and Pitṛ-yagna, of which this work deals only with the first section. It quotes good many later works and writers, such as—

Ananta Bhaṭṭāḥ (1).
Ācāra-candra (1).
Kalpa-taru (9).
Kāma-dhenu (1).
Kāla-viveka (1).
Kāl-ādarśa (1).
Kṛtya-kalpa-latā (1).
Dāna-sāgara (3).
Pārijāta (1).
Pratihastaka (1).
Pradīpa (1).
Bhīma-parākrama (1).
Bhojā-rāja (2).
Yogīśvara (2).
Ratn-ākara (4).
Rāja-marttaṇḍa (4).
Rājā (? Bhojadeva) (1).
Varddhamāna-*paribhāṣā* (1).
Varṣa-kṛtya (1).
Śrīdattopādhyāya (1).
Śrīpatî-*saṁhitā* (1).
Śraddha-viveka (2).
Śrāddha-viveka-kāra (2).
Samaya-pradīpa (10).
Smṛti-sāra (1).
Siddhānta-maṇi (1).
Harihara (1).
Halāyudha Dharm-ādhikaraṇika (1).
Hemādri (2).

It is quoted by Raghunandana in the Tithi, the Durgotsava and the Ekādaśī tattvas, and by Govindānanda in the *Varśa-kriyā-kaumudī*.

(xviii) The *Gayā-śrāddha-paddhati*,[3] a manual of the funeral rites to the performed at Gayā. It is probably a supplement to his *śrāddha-cintāmani*.

(xix) The *Candana-dhenu-pramāṇa*,[4] a discussion of the texts for substituting sandal paste marks instead of burnt marks on the bull dedicated at the time of the Śrāddha. It quotes the *Karmm-opadeśinī*, the *Ratn-ākara*, the *Brāhmaṇa-sarvvasva*, and Halāyudha.

[1] R. Mitra, *Notices*, X, p. 58, No. 3308, dated **संवत् १४१६ चचामवस्यायां.** Here Saṁvat can only mean Śaka saṁvat 1416 or 1494 A.D. For another instance of saṁvat meaning Śaka era, see the MS. of Premanidhi's *Dhārmādharma-prābodhinī* (Saṁvat 1410) *supra*, p. 393.

[2] As. Soc. MS. 46. F. I (with the seal of Fort William College, Calcutta), having ten introductory verses.

[3] Deccan College MS. 245 of 1887-91 (21 folios).

[4] R. Mitra, *Notices*, IX, p. 236, No. 3154 (6 folios).

(xx) The *Dattaka-vidhi* or *Dattaka-putr-eṣṭi-yāga-vidhi* [1] a manual of the rites for the adoption of a son.

To complete this list, his works on philosophy are noted below :—

(i) The *Anumāna-khaṇḍa-ṭīkā*,[2] said to give the essence of the views of Gotama (Nyāya) and of Jaimini (Mīmāṁsā). It is probably a commentary on the Anumāna-khaṇḍa of Gaṅgeśopādhyāya's *Tattva-cintāmaṇi*.

(ii) The *Khaṇḍan-oddhāra* [3] notes on the work of Śrīharṣa's *Khaṇḍana-khaṇḍa-khādya*.

(iii) The *Nyāya-sūtr-oddhāra* [4] notes on the *Nyāya-sūtra* of Gautama. A fragment only found

(iv) The *Śabda-nirṇaya*, a grammatico-philosophical treatise on Śabda or words. No MS. yet found. Mentioned in his *Dvaita-nirṇaya*.

One *Laghu-puruṣ-ārtha-cintāmaṇi* is mentioned in the Benares College *Catalogue* as made by the Maithila Vācaspati Miśra. If correctly attributed, it is not clear whether it belongs to Smṛti or Darśana.

His Family and Time.

Vācaspati Miśra gives very little information of himself and none of his family. In the *Nyāya-sūtr-oddhāra*, Vācaspati Miśra calls himself *Mithile-śvara-sūriṇā* or a paṇḍit of the Mithilā king. In the final colophon of the *Śudr-ācāra-cintāmaṇi*, he is called *Mahārājādhirāja-Śrīmad-D-Harinārāyaṇa-pariṣadā*, a court paṇḍit of the king Harinārāyaṇa or Bhairavasiṁhadeva. In his last work extant, the *Pitṛ-bhakti-taraṅgiṇī*, towards the end, Vācaspati is called the *Pariṣad* or court paṇḍit of Rāmabhadradeva, the son of Bhairavasiṁha.

He had a son named Lakṣmīdāsa who in 1501 A.D. wrote the *Gaṇita-tattva-cintāmaṇi*, a commentary on the *Gaṇitādhyāya* and *Golādhyāya* of Bhāskarācārya's *Siddhānta-śiromaṇi*. In this work he calls himself the son of Vācaspati Miśra, who was son of Keśava of the Upamanya Gotra. Varddhamānopādhyāya in the *Daṇḍa-viveka* declared Śaṅkara and Vācaspati as his *guravaḥ* (preceptors).

The above accounts show that he flourished in two reigns, viz., of Bhairavasiṁhadeva, and in his old age of Bhairava's son Rāmabhadradeva.[5] Bhairava may be taken to have ruled

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[1] H. Shastri, *Notices*, III, p. 90. No. 139 (6 folios).

[2] Nepal MSS., *Notices*, p. 94.

[3] Sans. Coll. *Cat.*, III, p. 197, No. 313.

[4] H. Shastri, *Notices*, II, p. 98, No. 118 (incomplete, up to the end of fifth Adhyaya only).

[5] The oldest MS. of his, a copy of the *Śuddhi-nirṇaya*, was dated Saṁvat 1416 Caitra Amāvasyā, or 1494 A.D., (R. Mitra, *Notices*, X, p. 58, No. 3318).

from about 1440 A.D. As Vācaspati compiled more than thirty works, his literary activity must have been spread over a large number of years, say not less than thirty years from A.D. 1450 to 1480, when he had become an old man, and reached an age more than 60, and possibly 70.

Like Vidyāpati, Vācaspati Miśra attributed some of his works to Bhairavendra alias *Harinārāyaṇa*, viz., the *Kṛtya-mahārṇava*, the *Vyavahāra-cintāmaṇi* and the *Mahādāna-nirṇaya*, and wrote others by order, viz., the *Dvaita-nirṇaya* by order of Jayā, queen of Bhairavendra and the *Pitṛ-bhakti-taraṅgini* by order of the king Rāmabhadradeva.

The name Vācaspati is not uncommon. Hence the present writer is apt to be confounded with others. Firstly, he should be distinguished from the great Vedantist philosopher Vācaspati Miśra, who wrote on all the philosophical systems except Vaiśeṣika, and whose *Nyāya-sūci-nibandha* was written in the year 898, *Vasv-aṅka-vasu-vakare*. This year must be of the Vikrama saṁvat, as his *Bhāmati* or sub-commentary on Śaṅkara's *Śāriraka-bhāṣya* is quoted as an authority in the *Nyāya-mañjarī* of Jayanta, a work not later than the end of the ninth century, and probably of the third quarter of the same century.[1] Hence Vācaspati's *Vatsara* can not be of the Śaka era, as I had taken it in my article on Bhavadeva Bhatta. The distinction between the two is made by Gaṇapati who in his *Gaṅgā-bhakti-taraṅginī* calls the Maithili *Navīna-Vācaspati-Miśra*, and by Raghunandana, who now and then quotes the work of the older philosopher along with the name.

Secondly, he should be distinguished from a later Vācaspati, Candraśekhara Vācaspati of Vārendra Brahmana family.[2] The latter wrote another *Dvaita-nirṇaya*, the *Smṛti-sāra-saṅgraha*, the *Dharmma-dīpikā* and so on, and in his Mīmāṁsā work, the *Tattva-bodhinī*, mentions Rāmajīvana Mahārāja, a zamindar who flourished in the first half of the eighteenth century at Nattore in Rajshāhi district, Bengal.

8. VARDDHAMĀNOPĀDHYĀYA.

He wrote a number of works on Smṛti, most of which ended in the suffix *viveka*.

(i) The *Gaṅgā-kṛtya-viveka*,[3] a discussion of the texts on the rites to be performed on the banks of the sacred river Ganges. It quotes Gaṇeśvara Miśra, the *Tīrtha-cintāmaṇi*, the *Dharma-koṣa*, the *Pārijāta*, *Brāhmaṇa-sarvvasva*-kṛt, *Medinī-*

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[1] For the time of the *Nyāya-mañjarī*, see the introduction to the Vizianagram series edition of that work.

[2] Prof. Eggeling has confounded the two Vācaspatis in his notes on the *Smṛti-sāra-saṅgraha*, Ind. Off. *Cat.*, p. 450, No. 1490.

[3] Br. Museum *Cat.*, p. 75, No. 198.

kāra, Lakṣmīdhara, Śrīdatta, Hemādri, besides his own *Gayā-paddhati* and *Gayā-vidhi-viveka.*

(ii) The *Gayā-paddhati*, a manual of the rites to be performed at Gayā. No MS. found. Quoted in his *Gaṅgā-kṛtya-viveka*, probably a supplement to the next work.

(iii) The *Gayā-vidhi-viveka*, or a discussion of the rules for performing the Śrāddha at Gayā. No authentic MS. found as yet. Quoted in his *Gaṅgā-kṛtya-viveka.*

(iv) The *Daṇḍa-viveka*,[1] an elaborate discussion of the texts treating of punishments in the civil and criminal law, in seven paricchedas. A considerable number of later authorities are quoted :—

Kalpa-taru (39).
Kalpa-taru-kāra (3).
Kāmadhenu (30).
Kullūka Bhaṭṭa (73).
Kṛtya-sāgara (7).
Kṛtya-sāra (1).
Govinda-rāja (9).
Graheśvara Miśra (10).
Caṇḍeśvara (5).
Caturvarga-cintāmaṇi (2)
Trilocana Miśra (1).
Dāna-viveka (1)
Dāna-sāgara (1).
Dharmma-koṣa (3).
Nārāyaṇa Sarvajña (92).
Parāśara-bhāṣya (2).
Paribhāṣā (5).
Pārijāta (13).
Bhavadeva Bhaṭṭa (5).
Bhūpāla-*paddhati* (1).
Manu-ṭīkā (19).
Mahārṇava, the lexicon (1).
Mahārṇava-kāra (2).
Mitākṣarā (50).
Mitākṣarā-kāra (64).
Medhātithi (6).
Rudra (1).
Lakṣmīdhara (5).
Vivāda-cintāmaṇi (2).
[Vācaspati-] Miśrāḥ (18).
Viveka (1).
Viṣṇu Gupta (3).
Vyavahāra-tilaka (1).
[*Vyavahāra-*]*dīpikā* (3).
[*Vyavahāra-*]*dīpikā*-kāra (1).
Śūlapāṇi (2).
Saṅgraha (4).
Samaya-pradīpa (1).
Smṛti-sāgara (1).
Smṛti-sāra (1).
Harināthopādhyāya (1).
Halāyudha (49).
Halāyudha-*nibandha* (2).
And his own *Dvaita-viveka.*

The *Daṇḍa-viveka* is quoted in his own *Tattv-āmṛta-sāra-oddhāra.*

(v) The *Dvaita-viveka*, a discussion of the doubtful points of smṛti. Quoted in his own *Daṇḍa-viveka.*[2]

(vi) The *Paribhāṣā-Viveka*,[3] a discussion of various smṛtic matters including definitions of technical terms. In the latter respect it is probably a supplement to his *smṛti-paribhāṣā.*

(vii) The *Śrāddha-pradīpa*[4] or lamp of funeral ceremonies,

[1] As. Soc. *Cat.* MS. I.B. 41 (108 pages).
[2] It is probably the same as the *Dvaita-viṣaya-viveka* reported in H. Shastri's report for 1895-1900, pp. 10, 15.
[3] R. Mitra, *Notices*, V, p. 197, No. 1882.
[4] Do. do. V, p. 168, No. 1856.

of which one section deals with Gaurīya prayogas. It should be distinguished from the work of the same name by Śaṅkara Miśra. It is quoted by Gaṇapati in the *Gaṅgā-bhakti-taraṅginī* under the names *Śrāddha-dīpa*, and by Raghunandana in the Tattvas, Śāma-śrāddha, and Śuddhi. A *śrāddha-pradīpa* is quoted in the *Śrāddha-viveka* of Rudradhara, and a *Śrāddha-pradīpa*-kāra by Govindānanda in the *Śrāddha-kaumudī*, but the authorship cannot yet be decided. The *Śrāddha-pradīpa* quoted by Vācaspati Miśra is not probably the work of Varddhamāna.

(viii) The *Smṛti-tattv-āmṛta* or *Smṛti-tattva-viveka*,[1] a general digest of smṛti with discussion. It had the following sections (*añjalis*) named in a verse of the introduction, Śuddhi, Śrāddha, Vivāda, Dāna, Paribhāṣā, Vāstu (the rest of the verse lost), but apparently also Ācāra and Śānti, of which sections MSS. exist. In the first three *añjalis*, it quotes among others Govinda-rāja, Nārāyaṇa, *Ratna-mālā*, *Ratn-ākara*, Lakṣmīdhara, Śrīdatt-*āhnikam*, Śrīdattopādhyāya.

(ix) The [*Smṛti*] *tattv-āmṛta-sar-oddhāra*,[2] or the extract of the essence of his own *Tattv-āmṛta* (No. viii). It was in four sections, Ācāra, Śrāddha, Śuddhi and Vyavahāra with Vivāda. A MS. of the Vyavahāra section only found as yet.

(x) The *Smṛti-paribhāṣā*,[3] on the definition of Smṛtic technical terms, with discussion of the appropriate times and other matters. References to later authorities are rare, viz., the *Kalpataru* (1), *Kalpa-taru*-kāra (10), the *Gṛhya-pariśiṣṭa-ṭīkā* (1), Jitāmitra (1), the *Dāna-sāgara* (1), *Mitākṣara*-kāra (1), Rājā (? Bhojadeva) (1), Viśvarūpācārya (1), the *Smṛti-mahārṇava* (1), Harihara Miśrāḥ (4). It is quoted by Vācaspati Miśra in the *Śrāddha-cintamaṇi* and the *Kṛtya-mahārṇava*, and by Raghunandana in the Tithi and Ekādaśī Tattvas.

Varddhamāna was son of Gaurī and Bhaveśa in Vilva-pañcaka kula. Bhaveśa is called in the *Smṛti-tattv-āmṛta*, *sat-kavi* (good poet), and in the *Paribhāṣā-viveka* and the *Gaṅgā-kṛtya-viveka*, *mahā-kavi* (great poet). Varddhamāna had an elder brother, Gaṇḍaka Miśra. So presumably Varddhāmana was a Miśra; but in some of the final colophons and also by Vācaspati, Śrīnātha, Gaṇapati and Raghunandana he is given the title of *Upādhyāya*. Vācaspati and Śaṅkara, the two fore-

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[1] Ind. Off. *Cat.*, p. 446, No. 1485; for the Śānti section, see R. Mitra, *Notices*, VI, p. 12, No. 1992, and for another Ācāra and Śrāddha section, Do. V, p. 183, No. 1868.

[2] R. Mitra, *Notices*, VI, p. 57, No. 2030 (Vyavahāra only).

[3] Ind. Govt. MS. 1432. The As. Soc. MS. named *Nānā-śāstr-ārtha-nirṇaya* (96 folios, of which the first two are missing) agrees with the *Smṛti-paribhāṣā* up to fol. 91b, and then adds an extract of the Vivāda portion.

most paṇḍits of the time, were his *guravaḥ* (preceptors).[1] In the final colophon of the *Daṇḍa-viveka* he is called *Dharmm-ādhikaraṇika* or judge, and of the *Smṛti-tattvāmṛta* he is called *Mahā-dharmm-ādhikāri* or chief judge.

Varddhmāna wrote the *Daṇḍa-viveka* at the instance of the King Bhairava, and the *Gaṅgā-kṛtya-viveka* by order of Rāmabhadradeva, while his *Tattv-āmṛta-sār-oddhāra* he offered to the King Rāmapati (same as Rāmabhadra) as a garland. His *Smṛti-paribhāṣā*, quoted by his guru Vācaspati in the *Śrāddha-cintāmaṇi* and the *Kṛtya-mahārṇava*, must have been among his earliest works, as indicated by the rarity of references to later authorities. The two works compiled under the patronage of the king Rāmabhadra must have been among the latest, and the others lie between these two extremes. The *Daṇḍa-viveka* and the *Smṛti-tattv-āmṛta* are productions of a somewhat mature age.

Varddhamāna must be older than the year La. saṁ 376, Pauṣa vadi 13 Budhe (1496 A.D.), when a MS. of his *Gāṅgā-kṛtya-viveka*, one of his latest works, was copied. He must be at least a decade younger than Śaṅkara and Vācaspati, his preceptors. Some of his works were written during the reign of the king Bhairavasiṁhadeva. So his literary activity flourished partly in the third and partly in the fourth quarter of the fifteenth century.

This Varddhamānopādhyāya should be distinguished from the Naiyāyika of the same name, son of Gaṅgeśopādhyāya, who flourished in the thirteenth century. For this reason Raghunandana often calls the Smṛti-writer Navya-Varddhamāna (the modern Varddhamāna).

9. MISARU MIŚRA.

He wrote in Smṛti :—

(i) the *Vivāda-candra*,[2] dealing with Vivāda and Vyavahāra (at the end). Its quotations from named later authorities are few :—

Pārijāta (1).
Bālarūpa (1).
Bhavadeva (2).
Ratn-ākara (10).
Ratn-ākara-kṛt (1).
Vyavahāra-tilaka (1).
[*Smṛti-mahārṇava-*]*prakāśa* (1).
Smṛti-sāra (7).

He wrote also (ii) the *Padārtha-candra*, on the categories according to Vaiśeṣiko-nyāya system.

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[1] The *Daṇḍa-viveka* (As. Soc. MS. page 1). introductory verse 6 :—

ज्यायान् गंडकमिश्रः शंकरवाचस्पती च मे गुरवः ।
निखिलनिबंधसमासप्रयासमेनं समानुजानन्त ॥ [६ ॥]

[2] Sans. Coll. *Cat. MSS.* II. 116 (and 117), and As. Soc. Bengali MS. I. B. 41.

Misaru Miśra gives no information of himself or of his ancestors. Both the works he attributed to Lachimādevi, wife of Candrasiṁha, the younger brother of Bhairavasiṁhadeva. This places him in the third and fourth quarter of the fifteenth century. Jolly would place Lacchimādevi in the fourteenth century, an assertion for which no reasons are assigned.[1]

10. RUDRADHARA UPĀDHYĀYA.

He wrote several works in Smṛti.

(i) The *Varṣa-kṛtya*,[2] dealing with a number of festivals and optional fasts, beginning with the vrata of Behulā. It is probably a supplement to No. ii, and quotes :—

Kalpa-taru (3).
Gauṛa-*nibandha* (2).
Yogīśvara (1).
Ratn-ākara (4).
Śiva-vākyāvalī (1).
Śrīkara-*nibandha* (2).

(ii) The *Vrata-paddhati*,[3] a manual of the rites to be performed in connection with vratas. It quotes very few nibandhas and is largely based on Śrīdatta's *Samaya-pradīpa*.

Kalpa-taru (3).
Gauṛa-*nibandha* (2).
Pārijāta (4).
Yogīśvara (1).
Ratn-ākara (4).
Varṣa-pradīpa (1).
Samaya-pradīpa (15).

(iii) The *Suddhi-viveka*[4], on purification, in three paricchedas. It was composed though works like the *Ratn-ākara*, the *Pārijāta*, the *Mitākṣarā*, the *Hāra-latā* and others existed on the subject. It quotes—

Ācār-ādarśa (3).
Kalpa-taru (4).
Pārijāta (4).
Bhavadeva (1).
Mitākṣarā (6).
Medhātithi (1).
Ratn-ākara (28).
Suddhi-pradīpa (1).
Suddhi-bimba (1).
Srāddha-kalpa (1).
Srāddha-kalpa-taru.
Srāddha-mañjarī (1).
Śrīdattopādhyāya (1).
Smṛti-sāra (1).
Smṛti-sāra-kṛt (1).
Harihara Miśra (1).
Hāra-latā (10).
Hāra-latā-kāra (4).

It should be distinguished from the works of the same name by Śūlapāṇi and by Śrīnāthācāryacuṛāmaṇi.

(iv) The *Srāddha-viveka*,[5] dealing with the funeral rites, in four paricchedas. It quotes—

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[1] The Tagore Law Lectures, 1883, p. 27 : "In the fourteenth century Queen Lakhīmādevī of Mithilā (Tirhut) composed the *Vivāda-Candra*."

[2] The *Varṣa-kṛtya*, printed in Nagri (Benares ?).

[3] For the *Vrata-paddhati*, see Ind. Govt. MS. 5742 (44 folios).

[4] The *Suddhi-viveka*, printed at Venkateśvara Press, Bombay.

[5] For the *Srāddha-viveka*, in the Benares pr. ed. (Saṁvat 1929).

Kalpa-taru (2).
Pārijāta (1).
Pitṛ-bhakti (*prācīna*) (8).
Bhuja-bala-bhīma (1).
Bhoja-rāja (1).
Ratn-ākara (3).
Śrāddha-kalpa (4).
Sraddha-pañji (1).
Śrāddha-pallava (8).
Śrāddha-pradīpa (1).
Śrāddha-viveka, Gauṛīya (1).
Sugati-sopāna (2).
[*Smṛti-*]*mahārṇava* (2).
Smṛti-ratna-viveka (1).
Smṛti-sāra (4).
Halāyudha (2).
Mentioning his *Suddhi-viveka* twice.

It should be distinguished from the work of the same name by Śulapāṇi, which the author himself has quoted as Gaurīya.

In the *Vrata-paddhati* Rudradhara refers to the sayings of his brother both in the beginning and in the end. In the final colophon of the *Śuddhi-viveka*, Rudradhara is called the son of Laksmīdhara and younger brother of Haladhara, who is presumably the brother alluded to. Rudradhara calls himself vaguely as *Sarmmā*; but by Govindānanda in his *Śrāddha* and *Suddhi-kaumudī* he is given the title *Upādhyāya*.

Rudradhara is quoted several times in the Śuddhi, Prāyaścitta, Tithi, Kṛtya, and Sāma-śraddha tattvas.[1] So he must be older than the beginning of the sixteenth century. He quotes the *Suddhi-pradīpa* and the *Śrāddha-pradīpa*, works of Śaṅkara Miśra, though the latter may be the work of Varddhamāna. So his time must be later than the third quarter of the fifteenth century. His time thus falls roughly in the fourth quarter of the same century.

This Rudradhara should probably be distinguished from the Rudradhara who wrote Śmṛti works with titles ending in *candrikā*, viz., the *Kṛtya-candrikā* on fasts and festivals, the *Vivāda-candrikā* on civil and criminal law, and the *Śrāddha-candrīka* on funeral rites. Not having seen any of these works I am unable to give any definite opinion. That author names as his *guru* Caṇdesvara, but does not name his parents or brothers, if any. He quotes Varddhamāna in the beginning of his *Śrāddha-candrikā* on the meaning of the word Śrāddha.

11. GAṆAPATI.

He wrote the *Gaṅgā-bhakti-taraṅgiṇi*,[2] in three taraṅgas or waves (pramāṇa, vyavasthā and prayoga) dealing with the sanctity and the varous rites to be performed on the banks of the sacred river Ganges. It quotes—

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[1] Rudradhara is also quoted in Acyutānanda Chakravarttī's *Hāra-latā-ṭikā*.

[2] For the *Gaṅgā-bhakti-taraṅgiṇī*, Sans. Coll. MSS. II. 323, 324. The MS. No. 324 is dated Saṁvat 1755 or 1698 A.D.

Karmma-pradīpa (1).
Kalpa-taru (1).
*Kalpa-taru-*kāra (3).
Kāmarūpa-nibandha (1).
Kal-ādarśa (1).
Gaṅgā-vākyāvalī (1).
Gaṇeśvara Miśrāḥ (3).
Tīrtha-cintāmaṇi (1).
Dāna-ratn-ākara (1).
Dvaita-nirṇaya (1).
Pratihastaka, *prācīna* (5).
Bhavaśarman, *prācīna* (1).
Mahā-dānā-nirṇaya (1).
Rāja-mārttaṇḍa (4).
Līlavatī-kṛtā *mukti-granthe* (1).
Varddhamānopādyāya (1).
Vācaspati Miśrāḥ, *navīna* (4).
Vidyāpaty-upādhyāya (8).
Śraddha-dīpa (1).
Śrīdattopadhyāya (8).
Soḍhadeva śarmmā (3).
Harināthopādhyāya (2).
Harihara (2).
Halāyudha Bhaṭṭāḥ (2).

In the introductory and final verses, Gaṇapati says that he was born in the family of Yogīśvara, that his grandfather got *vṛitti* or pension from the king of Mithilā, and that he was son of Dhāreśvara (in one MS. Vīreśvara). Neither the body nor the final colophon gives any title to Gaṇapati.

Gaṇapati's work must be older than Saṁvat 1755 or 1698 A.D., in which year a MS. was copied. It refers to Vācaspati Miśra and Varddhamānopādhyāya as authorities, and therefore should be later than the fourth quarter of the fifteenth century. Neither the author nor the work is traced in Raghunandana's tattvas. Gaṇapati might therefore be placed tentatively in the first quarter of the sixteenth century, if not later.

24. History of Mithilā during the Pre-Mughal Period.

By Rai Monmohan Chakravarti Bahadur.

During the three centuries and half that followed the Musalman invasion of Bengal, Sanskritic studies flourished considerably in the adjoining land of Mithilā, and were fostered by several of its kings. These studies later on stimulated the revival of Sanskrit learning in Bengal. Hence, apart from other considerations, some knowledge of the Mithilā kings and paṇdits is useful for the proper and adequate conception of Bengali intellectual life. In the present article I propose to discuss the history of Mithilā during these three centuries and half, so far as the scanty information available will permit. The subject will be treated under three heads :—

A. The Dark Period.
B. The Karṇāṭa Dynasty.
C. The Dynasty of Kāmeśa.

A. The Dark Period.

During the thirteenth century Mithilā generally escaped the deluge of Musalman inroads. The Mahomedans on their way to Lakhaṇāwaṭi marched from Oudh via Bihar, and did not try to pass north of the Ganges. The fourth Maliḳ of Lakhaṇāwaṭi, Sultān Husāmud-dín 'Iwāz (1213-1227 A.D.), is said to have received tribute from the neighbouring countries, Bang, Kāmrūd and Tirhut.[1] This claim is vague and was put in evidently by way of praise. The only recorded inroad into Tirhut was made by the ninth Malik, 'Izz-ud-dīn Tughril (1233-1244 A.D.). "He made an inroad into the country of Tirhūt from Lakhaṇāwaṭi and acquired much valuable booty."[2]

It will be seen that the two Maliks who are credited with the invasion of Tirhut had fairly long reigns. In fact the Musalman governors of the frontier tracts, Lakhaṇāwaṭi, Bihār or Oudh, were changed so often and were so busy with their own internal dissensions or in fighting their rebellious subjects that they had hardly any time or opportunity to attack Tirhut. One main reason for this abstention lay, of course, in the natural difficulties of the land. Tirhut was protected on the north by the nearly impenetrable jungles of the Himalayan Terai. On the other three sides the three rivers, the

[1] *Tabakāt-i Nāsiri*. Raverty's translation, pp. 587-8. See also my resumé, J.A.S.B., 1908, p. 157.
[2] Ditto, p. 737. Tirhūt was included in the Hindūstān of *Tabakaṭi* (p. 830).

Gaṇḍakī in the west, the Ganges on the south, and the Kauśikī on the east formed deep and broad moats not easy to cross. Furthermore, the land itself was intersected by a network of smaller streams which presented formidable obstacles to the rapid movement of the cavalry, the chief arm of the Turuṣka army. Inroads for booty were thus not feasible; while for inroads of conquest, neither Oudh nor Lakhṇāwaṭi was near enough to form a strong base.

Hence luckily for Sanskrit learning, Tirhut escaped during a century and a quarter the Turkish ravages that devastated the adjoining provinces. It gave refuge to a number of paṇḍits and students flying from the flames of foreign invasions that burnt up the neighbouring centres of learning. Its Sanskrit studies were thus considerably stimulated. In Nyāya specially this period forms a bright chapter. The Navya Nyāya (neo-logic) was practically founded by Gaṅgeśa Upādhyāya, whose *Tattva-cintāmaṇi* is a closely reasoned work of great originality on the totality of Nyāya doctrines. The school he founded flourished in this century, and included such notable scholars as Varddhamāna (the son of Gaṅgeśa), Jayadeva (surnamed Pakṣadhara Miśra), Vāsudeva and Rucidatta (pupils of Jayadeva), and the brothers Bhagīratha and Maheśa. Their commentaries developed the views of the founder, and established them on a solid basis.

Unfortunately neither the Sanskrit works nor the Musalman histories throw any light on the contemporaneous kings, or on the political life of the people. If Nānyadeva was the founder of the Karṇāṭa dynasty, then the kings of this dynasty were ruling in Mithilā in the thirteenth century. This question will be discussed in the following section.

B. The Karṇāṭa Dynasty.

In the fourteenth century Mithilā was ruled by kings professing to belong to Karṇāṭa in South India.[1] The earliest name as yet found is of Nānyadeva. According to Vidyāpati, king Nānyadeva of Karṇāṭa kula lived in Mithilā, and had a son named Malladeva, who took service under Jayacandra, the king of Kāśi and Kānyakubja, and who was killed in the war when only sixteen years old.[2] Malladeva has been made by him the hero of a tale on the *yuddha-vīra* (warrior).

[1] See the introductory verses of the *Kṛtya-ratnākara*, *Kārṇāṭa-vaṁśodbhava* (v. 4), *Śrīmat-Kārṇāṭa-bhūmi-pati-mukuṭa-maṇeḥ* (v. 6) and the introd. verse 2 of the *Dāna-paddhati*, *Kārṇāṭ-ānvaya- bhuṣaṇaiḥ*.

[2] Vidyāpati's *Bhū-parikramaṇa* which was later expanded into the *Puruṣa-parīkṣā*, its extant eight tales forming the first chapter thereof.

आसीन्मिथिलायां कर्णाटकुलसंभवस्य नान्यदेवनाम्नो राज्ञः. पुत्रो मल्लदेवनामधेयः कुमारः। कुमारः कान्यकुब्जं नामं जनपदं जगाम, तत्र च जयचन्द्र नाम्नो राज्ञः। fol. 18b. of the Sans. Coll. MS., vi. 79.

Now Vidyāpati often introduced really historical personages in his tales narrated in the *Bhū-pradakṣiṇa*, or its expanded form the *Puruṣa-parikṣā*. There was really a king of Kanauj and Benares by name Jayacandra whose inscriptions from either place range from 1170 to 1188 A.D.[1] As described in another tale, the *Ghasmara-kathā* of the *Puruṣa-Parikṣā* (the 12th tale of the fourth chapter) this Jayacandra, king of Kānyakubja, was defeated and killed in the war with Sahāb-ud-din by the treachery of his queen[2]; and in the Mahomedan histories this Kanauja king was defeated by Shahāb-ud-din *alias* Muizz-uddin Muḥammad in 1194 A.D. According to Vidyāpati, therefore, Nānyadeva flourished in the time of Jayacandra or a little earlier, say in the third quarter of the twelfth century.

This conclusion is supported by the Deopārā Inscription of Vijayasena[3] Its verses 20 and 21 suggest that Vijayasena conquered one Nānya. As Vijayasena's lower limit I have found out at 1158 A.D. or thereabout,[4] this Nānya can only be the Nānyadeva of Karṇāṭa kula, that king of Mithilā, whose son is said to have taken service under Jayacandra. In note No. 57 to verse 20 Professor Kielhorn put the date of Nānya in Śaka 1019 or 1097 A.D. But beyond tradition he has not brought any authentic fact in support of his statement. Another tradition equally unreliable places the conquest of Nepal by Nānyadeva in Nepal Saṁvat 9 or 888 A.D.[5]

According to traditions, Nānyadeva was the founder of the Karṇāṭa dynasty, and this tradition has been recorded in an inscription of Pratāpamalla dated Saṁvat (Nepal) 769 or 1648 A.D. In the inscription this royal family runs thus[6]:—

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[1] The coronation of Jayacandra took place on 21st June 1170. See *Ep. Ind.*, Vol. IV, p. 121.

[2] The *Puruṣa-Parikṣā*, Darbhāngā printed edition, pp. 223-233.

[3] *Ep. Ind.*, Vol. I., p. 309; for note 57, see p. 313.

[4] The *Pavana-dūtam*, Appendix, J.A.S.B., 1905, p. 50.

[5] The Nepal *Vaṁśāvalī* quoted by Paṇḍit Bhagwanlal Indraji, *Ind. Ant.*, 1884, p. 414.

[6] *Ind. Ant.*, 1880, p. 188, Bhagwanlal Indraji's *Inscriptions from Nepal*, No. 18 :—

आसीच्छ्रीसूर्य्यवंशे रघुनृपकुलजो रामचन्द्रो नृपेशः
तद्वंशे नान्यदेवोऽवनिपतिरभवत्तत्सुतो गङ्गदेवः ।
तत्पुत्रोऽभून्नृसिंहो नरपतिरतुलस्तत्सुतो रामसिंह-
स्तज्जः श्रीशक्तिसिंहो धरणिपतिरतो भूपभूपालसिंहः ॥ १ ॥
तस्मात् कर्णाटचूडामणिरिव हरभूत्सिंहदेवोऽस्य वंशे ... ..। संवत् ७६९
फाल्गुनशुक्लषष्ठ्यां तिथौ अनुराधानक्षत्रे हर्षणयोगे बृहस्पति वासरे [॥]

In the family of Raghu and Rāmacandra (Sūrya-vaṁśa).

⋮

Nānyadeva.
|
son
Gaṅgadeva.
|
son
Nṛsiṁha.
|
son
Rāmasiṁha.
|
son
Śaktisiṁha.
|
son
Bhūpālasiṁha.
|
son
Harasiṁha.[1]

(Mentioned also in another inscription of Pratāpamalla dated 778 Nepal era or 1657 A.D.).

This traditional account is, as will be seen *infra*, wrong in its succession and in its relationship. The Nepal *Vaṁśāvalī* quoted by pandit Bhagwanlal gives Nānyadeva a reign of 50 years; Gaṅgadeva, 41 years; Nṛsiṁha, 39 years; Rāmasiṁha, 58 years; and Harasiṁhadeva, 28 years.[2]

Apart from the traditions, the real authentic facts are that Nānyadeva belonged probably to the Karṇāta kula, that he was a king of Mithilā, and that he was a contemporary of Vijayasena and probably of Jayacandra.

After Nānyadeva, the next king of the Karṇāta kula authentically recorded is Harasiṁhadeva. He is named as the king of Mithilā by Caṇḍeśvara in the introduction to his *Kṛtya-ratnākara*. According to that introduction Caṇḍeśvara, his father Vīreśvara and his grandfather Devāditya were *Mahā-sāndhi-vigrahika* (peace and war ministers) of this king.[3] Gaṇeś-

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1 *Ind. Ant.*, 1880, p. 189, inscription No. 19, verse 10:—

जातः श्रीहरिसिंहदेवनृपतिः प्रौढप्रतापोदयः
तद्वंशे विमले महारिपुहरे गाम्भीर्य्यरत्नाकरः।
कर्णाट. सरसामुपेत्य मिथिलां संलभ्य लब्धप्रियो
नेपाले पुनरात्र वैभवयुते स्थैर्य्यं विधत्त चिरं ॥ १० ॥

2 *Ind. Ant.*, 1884, p. 414.

3 The *Kṛtya-ratnākara*, As. Soc. Bengal MS., fol. 1a, Ind. Govt. MS. 3604, fol. 1a, and I.O. MS. No. 1387:—

स्वस्ति श्रीहरसिंहदेवनृपतिर्विश्वेषविद्वेषिणां
निर्माथी मिथिलां प्रशासदखिलां कार्णाटवंशोद्भवः।

vara, son of Devāditya, also calls himself in his *Sugati-sopāna* a *mantri* or minister, apparently of this king.[1]

The capital was at Simarāmapura,[2] modern Simrāon, now lying within the border of Nepal. The king must have ruled fairly long, for three generations were in his service as peace and war ministers. Caṇḍeśvara is said to have conquered for him Nepal,[3] after which the minister performed the great religious gift of tulā-puruṣa (gift of gold of the donor's weight) on the bank of the Vāgvatī river in the month of Mārga, Śaka 1286, or November 1314 A.D. As Caṇḍeśvara's father and grandfather had already served the king, the latter must have begun to rule several years before 1314. It would not thus be far from truth to infer that Harasiṁhadeva was ruling from the last decade of the thirteenth country.

The posterior limit of this king's reign is fixed by his conflict with the Musalmans. In the *Dāna-ratnākara* Caṇḍeśvara is described as having rescued the earth flooded by Mlecchas.[4] Kaviśekharācarya Jyotirīśvara in his two-act comedy, the *Dhūrta-samāgama*, is a little more definite. The comedy was played in the court of the Karṇāṭa-curāmaṇi, king Harasiṁhadeva, who is said to have conquered the Suratrāṇa (Sultān).[5]

आशाः सिञ्चति यो यशोभिरमलैः पीयूषधाराद्रवै-
र्देवः शारदमार्व्वरी पतिरिवाशेषप्रियम्भावुकः ॥ [४]॥

See also the *Puruṣa-parikṣā*, 2nd chapter, the story of Subuddhi :—

आसीन्मिथिलायां कार्णाटकुलसम्भवो हरिसिंहदेवो नाम राजा। तस्य सांख्यसिद्धान्तपारगामी दण्डनीतिकुशलो गणेश्वरनामधेयो मन्त्री बभूव।

For the ministership of Vireśvara and Devāditya see the introductory verses of the *Kṛtya-ratnākara* and the *Kṛtya-cintāmaṇi* (I.O. 1621), and also the final colophons of the various sections of the *Ratnākara*.

[1] Ind. Gov. MS. 6126, Intr. verse :—

वेदस्मृतिपुराणादि दृष्ट्वा लोकहितैषिणा।
कृतं सुगतिसोपानं श्रीगणेश्वरमन्त्रिणा ॥ [१ ॥]

[2] Simarāmapura is mentioned in the introductory verses of the *Kṛtya-ratnākara*.

[3] The conquest of Nepal is mentioned in the *Kṛtya*, *Dāna* and *Vivāda-ratnākara*.

[4] The *Dāna-ratnākara*, final verse 2. R. Mitra, *Notices*, VI. 135. No. 2089 :—मग्ना म्लेच्छमहार्णवे येनोद्धृता लीलया।

[5] The *Dhūrta-samāgama nāṭaka* the comedy of meeting of the cheats, printed (Calcutta and Bombay). Nep. Durbar *Notices*, p. 66.

नानायोधनिबद्धनिर्भरसुरत्राणत्रसद्वाहिनी-
हृत्यन्त्रोमकल्पमेलकदलद्भूमिभृन्नद् भूधरः।
अस्ति श्रीहरसिंहदेवनृपतिः कार्णाटचूडामणि-
र्दृप्यत्पार्थिवसार्थमौलिमुकुटन्यस्ताङ्घ्रिपङ्केरुहः ॥

The Calcutta printed edition has नरसिंह for हरसिंह।

The Sultān referred to is evidently the Delhi Sultān Ghiyās-ud-din Tughlak, who in 724 H. (1324 A.D.) marched towards Bengal through Tirhut. Ziā-ud-din Barnī says:—" When the Sultan reached Tirhut, the ruler of Lakhnauti, Sultān Nāsir-ud-dīn, came forth with great respect to pay homage to the Sultan; and without the sword being called into requisition, all the Rais and Ranas of the country made their submission."[1] The comedy speaks of a hard fight with the Sultān, a statement which is more likely true. The comedy must have been composed some time after the fight, that is after 1324 A.D. As it was played before the king, Harasiṁhadeva was living at least in 1235 or 1326 A.D.

The Delhi Sultāns continued to claim the overlordship of Tirhut. In support of this claim Ghiyās-ud-din's son Muḥammad issued coins with the mint name *Tughlakpūr 'urf Tirhūt.* Two of them exist. They belong to the forced currency system (brass for silver), and one in the Indian Museum is dated 731 H. (1330-1 A.D.).[2] Furthermore Vidyāpati in his tale of the *Satyavīra* (the truthful hero) narrates that Muḥammad, the Yavana king of Hastināpura, had a fight with the king Kāfar (*Kāfar-rāja*) during which Maḥammad's men began to retire, on which he called for some warriors to stem this retreat, that prince Narasiṁhadeva of Kārṇāta kula and prince Cārcikadeva of Cauhāna kula stepped forward, and that Narasiṁha ultimately killed the Kāfar-rāja, whose head was cut off and taken to Muḥammad by Cārcikadeva.[3] According to this story Narasiṁhadeva of Karṇāṭa kula was attached to the Sultān's force, and thus there might be some truth in Muḥammad's claim of overlordship. In the list of twenty-three provinces forming the empire of Muḥammad, the name of Tirhut does not appear[4]; but of the two Telingas (Nos. 11 and 23), one might be a misreading for Tirhūt, and if so the claim will not be without evidence.

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[1] The *Tárikh-i Fīroz shāhi*, Elliot, vol. III, p. 234.

[2] These two unique coins, specimens of Muḥammad's mad attempts to force people to use brass coins in the place of silver for the same value, are of 140 and 133 grains respectively. For the coin of 140 grains, see Rogers' *Indian Museum Coins*, Part I, p. 63, No. 12911; and Bourdillon's *Catalogue of Ind. Mus. Coins*, Vol. II, p. 60, No. 384. For the coin of 133 grains, see J.A.S.B., 1883, p. 62, pl. v, fig. 32, and Rogers' *Cat.*, Pt. I, p. 63, No. 12912.

[3] Vidyāpati's *Bhū-parikramaṇa*, Sans. Coll. *Cat.*, VI. 79, fol. 27a-*b* :—
पुरा हस्तिनापुरनाम्नि नगरे महंमदनामा यवनेश्वरो बभूव [।।] यस्मिन्नासमुद्र-धरणीवलयं शासति तदुत्कर्षसहिष्णुः काफरराजस्तमभियोक्तुं सकलबलसहितस्तत्रा-जगाम । ......fol. 28a तत्र यवनराजवचनं श्रुत्वा कार्णाटकुलसंभवो नरसिंहदेव-नामा चौहानकुलसंभवश्चार्चिकनामा च राजकुमारौ प्रोचतुः । ......

[4] For the list of 23 provinces, see Thomas' *Chronicles of the Pathan Kings of Delhi*, p. 203, note 1.

The above story furnished the name of another king of this dynasty, Nṛsiṁha. The name Nṛsiṁha, too, appears in the traditional account of the Nepal inscription. He is named also in the *Dāna-paddhati* where the author Rāmadatta declares himself to be his *mantrī* or minister.[1] Rāmadatta was uncle's son of Caṇḍeśvara Ṭhakkura and was therefore near in time to that author. Hence Rāmadatta's master Nṛsiṁha must have been near in time to Caṇḍeśvara's master, the king Harasiṁhadeva, and very likely succeeded him.

Tirhut appears again in the account of the first invasion of Bengal by the Delhi Sulṭān Fīroz S̱hāh. According to Barnī the Sulṭān marched towards Lakhnauti through Gorakhpur, Kharosa, and Tirhut, the Rais of the first two tracts submitting and following him to Lakhnauti. S̱hams-i Sirāj 'Afīf gives a little more details of this march. When the Sulṭān arrived on the banks of the Kosi (? Gaṇḍak) near its junction with the Ganges, he found the passage difficult and the enemy's army posted in force on the opposite side (probably at Hajipūr said to have been founded by the then Bengal king Hāji Ilyās S̱hāh). So the Sulṭān marched up the river for 100 kos, and below Campāran where the river was found fordable, crossed it by a living bridge of elephants. Then via Campāran and Rācāp he moved on towards Paṇḍuah.[2]

According to Barnī, Fīroz S̱hāh left Delhi on 10th Shawwal 754 H. (8th November, 1354 A.D.) and returned to it on 12th Sha'ban 755 H. (1st September, A.D. 1355). The march through Tirhut took place therefore in the winter of 1355 A.D. In the winter the rivers would have fallen low and would therefore be favourable to the crossing of cavalry and elephants. Barnī's Kharosa lying between Gorakhpur and Tirhut is probably to be identified with Campāran (Sansk. *Campāk-āraṇya*).

The last king of this dynasty traced out is Rāmasiṁhadeva. Bendall has confounded him with Rāmabhadradeva, son of Bhairavendra in the dynasty of Kāmeśa.[3] But apart from the traditional account of the Nepal inscription, Rāmasīṁhadeva is mentioned in and his time is fixed by a MS. of the

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[1] The *Dāna-paddhati*, I.O. MS. 1714 (p. 550) :—

नानाक्षितिपालमौलिवलभीप्रत्युप्तरत्नांकुर-
ज्योतिःक्षालितपादपद्मयुगलः श्री मान्नृसिंहो नृपः ।
शौर्य्यश्रीनिकषः प्रशास्ति मिथिलाभूमंडलं रंजयन्
कार्णाटान्वयभूषणः कृतधियां निर्व्याजकल्पद्रुमः ॥ [१॥]
मंत्री तस्य महामती गुरुरिव श्रीरामदत्तः सताम्
आधारः सुकृती समस्तभुवनप्रख्यातदानोत्सवः ।......[२॥]

[2] Elliot, Vol. III, pp. 293-294.

[3] Bendall, J.A.S.B., 1903, p. 19.

Śuddhi-kalpa-taru. Its copying was completed in the reign of Rāmasiṁhadeva on Saturday the 14th of the bright half of the month Pauṣa in the year Saṁvat 1446 or 1st January 1390 A.D.,[1] which was a Saturday.

He seems to have been a liberal patron of learning. His officer (Sadasya) Śrīkara Ācārya wrote the *Vyākhy-āmṛta*, a commentary on the lexicon *Amara-koṣa*. Under his patronage Ratneśvara Miśra wrote a commentary on the rhetorical *Sarasvatī-kaṇṭh-ābharaṇa* (the *Ratna-darpaṇa*), and Prithvīdhara Ācārya wrote a commentary on the drama *Mṛcchakaṭikā*.[2]

The rule of this dynasty left its mark on Sanskrit learning of Mithilā. Smṛtic studies were renewed and considerably developed by Caṇḍeśvara and his family, and by such notable scholars as Śrīdattopādhyāya, Harināthopādhyāya, Bhavaśarman, Indrapati and his pupil Lakṣmīpati. Padmanābha Datta started an important school of grammar with his *Supadma* and its supplements, works which are still studied in the districts of Jessore and Khulna in Bengal. On rhetoric and erotics Bhānudatta Miśra wrote some of the most popular works.[3] Among literary compositions, the commentary of Bhavadatta on the epic poem *Naiṣadha-caritam* is still studied with interest; while the commentary of Pṛthvīdhara Ācārya on the drama *Mṛcchakaṭikā* written under the patronage of Rāmasiṁhadeva has been already noticed. Lexicon was represented by Śrīkara Ācārya's commentary on the *Amara-koṣa*. Jyotirīśvara also deserves mention for composing the earliest extant work in Maithilī vernacular, the *Varṇa-ratnākara*.

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[1] Ind. Govt. MS. 4741, of the *Śuddhi-kalpataru*, fol. 62b :—

संवत् १४४६ समय पौषशुदि १४ शनौ श्रीमन्नारायणपुर न्दपनारायणेत्यादि + + + + दरवराजौविभ्राजमानमहानृपति श्रीमद्रामसिंहदेव भुज्यमानया etc.

[2] For Śrīkara, Nepal Durbar *Cat.*, p. 23 :—

इति मिथिलामहीमहेन्द्रसमस्तप्रक्रियाविराजमानश्रीम + + + वरलब्धप्रसाद-पुण्यावलोकमहाराजाधिराजश्रीमद्रामसिंहदेवानां सदस्य महामहोपाध्यायश्रीश्रीकर-विरचितायाममरकोषविवरणटीकायां व्याख्यामृताभिधानायां भूकाण्डे + + विवरण समाप्तं। This commentary of Śrīkara is quoted in Jagaddhara's commentary on the *Veṇisaṁhāra nāṭakam*, इति अमरटीकायां श्रीकरः (Nir. Sāg. Press ed., p. 39). For Ratneśvara, R. Mitra, *Notices*, IX., p. 230, and Peterson's 3rd Report, p. 350 (attributed to Rāmasiṁhadeva, in text, and to Ratneśvara in colophon) :—

श्रीरामसिंहदेवेन दोर्दण्डदलितद्विषा ।
क्रियतेऽवन्तिभूपालकण्ठाभरणदर्पणः ॥[१॥]

For Prithvīdhara Ācārya, see Weber's Berlin Catalogue, p. 161. मिथिलाधिपति श्रीमद्रामसिंहदेव .

[3] In rhetorics the *Sarasvatī-kaṇṭh-ābharaṇa* was commented upon by Ratneśvara; and in erotics Jyotirīśvara wrote the *Pañcasāyaka* and *Raṅgaśekhara*, both quoted in mediæval literature.

The result of the above discussions about this royal dynasty is shown by a genealogical chart in the Appendix A.

C. The Dynasty of Kāmeśvara.

This dynasty can be traced in Mithilā ruling for at least a century and a quarter. For the earlier rulers Vidyāpati is the main authority: for the later rulers Vācaspati Miśra and his pupil Varddhamāna supply a good deal of information. The traditional accounts in the local *pañjes* (records of match-makers) have been generally excluded as unreliable.[1]

1. KĀMEŚVARA, KĀMEŚA.

He is the first of the family to rise to a high position, and hence the family has been called after him. According to Varddhamāna Kāmeśa ruled Mithilā.[2] But Vidyāpati who is older by half a century calls him by the fuller name Kāmeśvara and gives him only the title *Rāya* and *Rāja-paṇḍita*.[3] It would be safer therefore to infer that he had not become the king of Mithilā.

From his title *Rāja-paṇḍita*, from a description of his son Narasiṁhadeva as the jewel ornamenting the śrotriya vaṁśa, and from the word vipra given to another of his descendants (Rūpa-nārāyaṇa), the family appears to have been Brahminical.

2. BHOGĪŚVARA.

Kāmeśvara left at least two sons, Bhogīśvara and Bhaveśa. Bhogīśvara succeeded him, and this elder branch continued for two generations more. In the *Padāvalī* Vidyāpati names him with the title Rāya and as husband of Padmādevī.[4] In his

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1 For the traditional accounts, see Grierson, *Ind. Ant.* 1885, p. 182; 1899, p. 57. For the literary account of the family, see J. Eggeling, *Ind. Off. Cat.*, pp. 875-6, and C. Bendall, J.A.S.B., 1903, pp. 18-19.

2 The *Gaṅgā-kṛtya-viveka* (*Br. Mus. Cat.*, p. 75, No. 198), introd verse 2:—कामेशो मिथिलामशासत्, etc.

3 The Ind. Govt. MS. of the *Kīrtti-latā*, 2nd pallava, p. 3:—
भलि कामेसरसुन राए and the *Dāna-Vakyāvalī* (R. Mitra, *Notices*, V, p. 137, No. 1830, and R. Bhandarkar, Report for 1883-4, p. 352) introd. verse. 3:—

श्री कामेश्वरराजपण्डितकुलालङ्कारसारःश्रिया
मारामो नरसिंहदेव मिथिलाभूमण्डलाखण्डलः ।

4 The *Padāvalī* (edited by Babu Nagendranath Gupta in Bengali, sana 1316), song No. 801, the end verse:—

राउभोगिसर गुणनागरा रे
पदमादेवि रमान ॥ १ ॥

earliest extant work, the *Kirtti-latā* Vidyāpati describes Bhogīśvara, the son of Kāmeśvara, as calling on his friend Sultān Fīroz (of Delhi) and being honoured by him.[1] This honouring, if any, took place between 1355 A.D. on Firoz's return to Delhi from the first invasion of Bengal and 1388 A.D., the year of his death, say *circa* 1360 A.D.

3. GAṆEŚVARA.

According to the traditions he was the son of Bhogīśvara. In the *Kīrtti-latā* he is said to have been defeated and killed by one Aslān (a Mussalman evidently), in Lakṣmaṇasena year 252 (?) month Agaha (?) first (dark) half 5.[2] This takes us to the year 1370 A.D. But the passage is corrupt. He was father of Kīrtti-siṁha according to another passage.

4. VĪRASIṀHADEVA.

In the *Kīrtti-latā* he is said to be the elder brother of Kīrtti-siṁha and is given the title Mahārājādhirāja.[3] Even with this title it is doubtful if he was king, for even ministers like Caṇḍeśvara and Rāmadatta had been given this title in the colophons of their works.

5. KĪRTTISIṀHA.

The son of Gaṇeśvara and the younger brother of Vīrasiṁha. In his honour Vidyāpati wrote the *Kīrtti-latā*.[4] It is in four cantos (pallavas) and forms a curious mixture of Sanskrit verses (in the introduction and end of each canto), Maithili songs, and even Maithili prose. According to this poem, Kīrttisiṁha had the title Rāyaguru and had to recover his patrimony

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[1] Ind. Govt. MS. of the *Kirtti-latā*, 2nd pallava, p. 4:—

मति कामेसरसन राए। जय रूपए। तसु नन्दन भोगीस राअ बरभोग पुरंदर... ..पिअसख भणि पिअरोजसाह सुरतान समानल...

[2] Ind. Govt. MS., 2nd palliva, p. 3:—

लक्खणसेननरेश लिहिअज वे (२) पख (५) पंच वे तमगए (?) मासहि पढमपख पंचमी कहि, रज्जलुद्ध असलानबुद्धिभिक्ख मवले हारल, पाखव इति विधि राआ एवे सर मारल ...

[3] Ind. Govt. MS., 2nd pallava, p. 4:—

चन्द्रचूडचरणसेवसमस्तप्रक्रियाविराजमानमहाराजाधिराजश्रीमद्वीरसिंहदेव नान् कनिष्ठगरिष्ठगुणकीर्त्तिसिंहभूपाल [॥]

[4] Ind. Govt. MS., 1st pallava, introd. verse 5, p. 1:—

श्रोतुर्ज्ञातुर्वदान्यस्य कीर्त्तिसिंहमहीपतेः।
करोतु कवितुः काव्यं विद्यापतिः कविः ॥ [५ ॥]

from his father's enemy.[1] A few more facts may have been recorded, but the MS. is corrupt, and the early Maithili in which it is written is as yet unintelligible.

6. BHAVAŚIṀHADEVA, BHAVEŚA.

The elder branch died childless, and then the younger son of Kāmeśvara, Bhaveśa, succeeded. He is undoubtedly the first king of whole Mithilā. Vidyāpati generally gives him the fuller name Bhavasiṁha, but in his *Vibhāga-sāra*, in Vācaspati Miśra's *Kṛtya-mahārṇava* and *Mahādāna-nirṇaya*, in Misaru Miśra's *Vivāda-candra*, and in Varddhamāna's *Gaṅgā-kṛtya-viveka*, the king's name has been shortened to Bhaveśa.

Murāri, the author of *Śuddhi-nibandha*, says that his great-grandfather Jayadhara Lāḍha was the chief judge of Bhava-siṁha. According to Vidyāpati this king with two of his wives gave up body before the Lord Śiva on the bank of the Vāgvatī.[2]

7. DEVASIṀHA.

The eldest son and successor of Bhavasiṁha. With him began the elder branch of the junior family continuing up to Padmasiṁha. He had a viruḍa, *Garuḍa-nārāyaṇa*, the first to be authentically traced. The *Padāvalī* mentions Hāsinīdevī as his queen.[3]

He patronised the paṇḍits. By his order Vidyāpati wrote the *Bhū-parikramaṇa* describing the travel of Baladeva from the Naimiṣya forest to *Janaka-deśa* (Mithilā), in the course of which he was told eight moral tales. With this king's consent Hari-Śrīdatta compiled the smṛtic *Ek-āgni-dāna-paddhati*.[4] Hari-hara, grandfather of Murāri, was his chief judge.

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1 Ind. Govt. MS., 1st pallava, p. 2 :—

पुरिसपसंसओ राअगुरु कीर्त्तिसिंह गाणेसहुअ ।
जैसन्‌ समरसम्मदि कऊ बप्पवैर उद्धरिअधुअ ॥

2 The *Puruṣa-parikṣā*, the end verse No. 1:—

वाग्वत्यां भवसिंहदेवनृपतिस्त्यक्ता शिवाग्रे वपुः
पत्नी यस्य पितामहस्मरगमहारदयालंकृतः ॥ [१ ॥]

3 Vidyāpati's *Padāvalī* (Bengali ed.), song No. 269 :—

हासिनि देविपति देवसिंह नरपति
गरुडनरायण रङ्गे भुलली ॥ ९ ॥

For other references, see its Nos. 32, 54 (Nepal MS.), 219, B (p. 499), E 15 (p. 544).

4 The *Bhū-parikramaṇa*. Sanskrit College MS., VI. 79 (fol. 1a), introd. verses 2-3 :—

देवसिंहनिदेशाच्च नैमिषारण्यवासिनः ।
शिवसिंहस्य पितुः स्तुतपिठनिवासिनः ॥ [१ ॥]

He gave large gifts to Brahmans including gifts of chariots and golden elephants, performed the Tulā-puruṣa gift ceremony, and dug out a large tank in the śāsana of Śaṅkarapura.[1]

Devasiṁha must have lived before La. saṁ 299, Pauṣa śudi 9, Monday (3rd January 1417 A.D.) when a Nepal MS. of Śrīdatta's *Ek-āgni-dāna-paddhati* was copied; and also before La saṁ 291, Kārttika vadi 10, when the copying of a MS. of Śrīdhara's commentary on the *Kāvya-prakāśa* by order of Vidyāpati was completed, and when Śivasiṁha was ruling the Tīrabhūkti.[2] According to a verse ascribed to Vidyāpati, Devasiṁha died on Thursday, the sixth of the dark half of the month Caitra in the year Lakṣmaṇasena 293 and Śaka year 1324.[3] The Śaka year 1324 or 1403 A.D. does not agree with the La. saṁ 293 or 1411 A.D., and is further inconsistent with

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पंचषष्ठिदेशयुतां पचषष्टिकथान्वितां ।
चतुःखण्डसमायुक्तामाह विद्यापतिः कविः ॥ [२ ॥]

The *Ekāgni-dāna-paddhati* (Nepal *Notices*, p. 129), introd. verse 1 :—

दातुः समदि सम्मतो नरपतेः श्रीदेवसिंहस्य स
श्रीदत्तो वितनाति पद्धतिमिमामेकाग्निदानोचिताम् ॥ [१ ॥]

[1] The *Puruṣa-parikṣā*, final verse 2 :—

सङ्करीपुरसरोवरकर्ता हेमहस्तिरथदानविदग्धः ।
भाति यस्य जनको रणजेता देवसिंहन्टपतिर्गुणराशिः ॥ [२ ॥]

and the *Śaiva-sarvvasra-sāra*, introd. verse 4 (R. Mitra, VI. p. 3) :—

दत्तं येन द्विजेभ्यो द्विरदरथमहादानमन्यैरशक्यं
का वार्त्ता त्वन्यदाने कनकमयतुलापुरुषो येन दत्तः ।
यस्य क्रीडातडागस्तुलयति स + + (ङ्करी) शासने वारिराशिं
देवोऽसौ देवसिंहः क्षितिपतितिलकः कस्य न स्यान्नमस्यः ॥ [४ ॥]

[2] Nepal MSS., *Notices*, p. 129, the final colophon :—

इति महामहोपाध्यायमिश्रश्रीनगेश्वरात्मजावसथिक + + + + + ध्यायश्री श्रीदत्तपद्धतावेकाग्निविधिमहादानविधानं पूर्णं । समाप्तोऽयं ग्रन्थः । शुभमस्तु । लसं २९९ पौष शुदि ९ चन्द्रे ... श्रीधनेश्वरेण लिखितेयं पुस्तीति ॥ The ninth tithi did not fall on a Monday in 1418 or 1419 A.D., but in 1417 A.D.

The *Kāvya-prakāśa-viveka*, Ind. Govt. MS., fol. 117a :—

इति तर्काचार्य्यठक्कुरश्रीश्रीधरविरचिते काव्यप्रकाशविवेक(के) दशम उल्लासः ॥ शुभमस्तु ॥ समस्तविरुदावलीमहाराजाधिराजश्रीमत्शिवसिंहदेवसंभुज्यमानतीरभुक्तौ श्रीगजरथपुरनगरे सप्रक्रियसदुपाध्यायठक्कुरश्रीविद्यापतीनामाज्ञया खाथाल सं श्रीदेवशर्म्म बलियास सं श्रीप्रभाकराभ्यां लिखितैषा हस्ताभ्यां [।] लसं २९१ कार्त्तिक वदि १० [।]

[3] The *Padāvalī*, p. 531 :—

अनलरंध्र कर लक्खण नरवई
सक समुद कर(पुर ?) अगिनि ससी ।

the year of copying of the commentary, La. saṁ 291, when Devasiṁha was still ruling. This verse is either spurious or contains some mistakes in the dates given. On calculation Caitra vadi 6th fell on Thursday in 1413 A.D. (March 23rd), which is equivalent to Śaka 1334 and La. saṁ 293 (expired). The Śaka year should therefore be corrected to 1334.

8. ŚIVASIṀHA.

Son and successor of Devasiṁha. His name is mentioned very frequently by Vidyāpati. In the *Bhūpradakṣiṇa*, Devasiṁha is called father of Śivasiṁha; and its expanded form the *Puruṣa-parīkṣā* was expressly compiled by order of Śivasiṁha.[1] His *Kīrtti-patākā*, an amatory poem in the vernacular, contains the praise of Śivasiṁha. His *Padāvalī* sings throughout the praise of this king, who is also named in his *Śiva-sarvvasva-sāra*.

Śivasiṁha bore the viruda, *Rūpa-nārāyaṇa*.[2] In the *Padāvalī*, this title with Śivasiṁha's name appears in no less than 112 songs, and alone in 17 songs.

In the *Padāvalī*, several queens of his are named. Among them the most frequently mentioned is Lakhimā or Lachimā-devī, who is named with the king in at least one hundred songs.[3] This frequent mention shows that she was the chief

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चतकारि कठि जेठा मिलिश्रो
वार वेहप्पई जाउलसौ ॥ [२ ॥]

[1] The *Puruṣa-parīkṣā* (Mitra, *Notices*, V. 245, No. 1922), the introd. verse 3 :—

निदेशान्निःशङ्कं सदसि शिवसिंहक्षितिपतेः
कथानां प्रस्तावं विरचयति विद्यापति कविः ॥ [३ ॥]

And the final colophon of the 4th pariccheda :—

इति श्रीसमस्तप्रक्रियाविराजमानरूपनारायणमहाराजश्रीशिवसिंहदेव पादा- नामाज्ञया श्रीविद्यापतिविरचितायां पुरुषार्थपरिचयोनाम चतुर्थः परिच्छेदः समाप्तश्चायं ग्रन्थः ॥

[2] See the *Puruṣa-parīkṣā*, the final colophon of the 2nd pariccheda :—

इति समस्तप्रक्रियाविराजमानरूपनारायणेत्यादि सद्ठक्कुरविद्यापतिविरचितायां पुरुषपरीक्षायां बुद्धिपरिचायको नाम द्वितीयः परीच्छेदः ॥ The *Padāvalī*, No. 21, etc.

रूपनरायण इरस जानथि
सिवसिंह मिथिलाभूपे ॥ ८ ॥

[3] See the *Padāvalī*, the words frequently used being *ramāne*, or *ramāna*, occasionally *pati* or *kanta*. Thus in song No. 23 :—

राजा शिवसिंह रूपनरायण
लखिमादेवि रमाने ॥ १० ॥

or favourite queen of Śivasiṁha. The other queens named are 2. Sukhamādevī, 3. Madhumatīdevī, 4. Suramādevī, 5. Rūpinidevī, 6. Medhādevī, 7. Modavatīdevī.[1] The last may be a variant of No. 3 or No. 6, while the 2nd and 4th may be the same.

The names of some officers of this king can be also traced out. Acyuta, grandfather of Ravi, who wrote the *Madhumatī*, a commentary on the *Kāvya-prakāśa*, was a *mantri* (minister)

In No. 19 :—

बुझए सकल रस नृप सिवसिंघ
लखिमा देइ करकन्त ॥ ७ ॥

And in No. 17 :—

राजा शिवसिंह रूपनरायण
लखिमा देइ पति भाने ॥ १२ ॥

[1] For the other queens, see the *Padāvalī*, No. 127 :—

राजा रूपनरायण जान ।
राए सिवसिंह सुखमा देइ रमान ॥ १४ ॥

No. 467 :—

लखिमादेविपति रूपनरायण
सुखमा देवि रमाने ॥ १३ ॥

No. 186 :—

सिवसिंह राजा एहो रस जानए ।
मधुमति देवि सुकन्ता ॥ १० ॥

No. 309 :—

बुझ सिवसिंघ रस रसमय
सोरम देवि समाजे ॥ १० ॥

No. 523 :—

विद्यापति भन कंसनरायण
सोरमदेवि समाज ॥ ८ ॥

where कंसणरायण is probably a mistake for रूपनरायण .

No. 678 :—

विद्यापति भन एड रस जान ।
राए सिवसिंह रूपिनिदेइ रमान ॥ १० ॥

No. 60 :—

दान कलपतरु मेदिनि सवतरु
नृपति हिन्दु सुरतान रे ।
मेधादेविपति रूपनरायण
सुकवि भनथि कण्ठहार रे ॥ १० ॥

No. 693 :—

राजा शिवसिंह मन दए सजनि
मोदवती देइ कन्त ॥ १० ॥

This piece is considered by the editor to be too modern in language to be Vidyapati's.

of Śivasiṁha.[1] In the *Padāvalī* are named as *mantri* Maheśa or Maheśvara, husband of Reṇukādevī, and Ratidhara, husband of Rūpinidevī. They were probably ministers of this king. In that anthology one Śaṅkara is named with his wife Jayamatī, and he might have been an high officer to be thus prominently mentioned.[2]

Vidyāpati mentions that Śivasiṁha got fame by fighting with the forces of the kings of Gauṛa and Gazzana (? Ghazni).[3] The verse giving the date of death of Devasiṁha speaks of Yavana forces attacking Śivasiṁha. If true this may be a fight with the Sultān of Jaunpur (Sharki dynasty). I have, however, pointed out the doubt about the dates given (La. saṁ 293 and Śaka 1324). Stronger doubts exist regarding the alleged copper-plate grant of Śivasiṁha to Vidyāpati.[4] It gives the (Fasli) sana 807, though no such era existed at the time, the Fasli sana having been founded a century and half later in Akbar's time. Moroever, the mention of Saṁvat year is sus-

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1 Peterson's third *Report*, p. 332, introd. verse 3 :—

शिवसिंहान्मिथिलेशादवाप यो संचितां विबुधः ।
तस्याच्युतस्य सूनुर्बभूव भुवि रत्नपाणिरयं ॥ [३ ॥]

Ratnapāṇi was father of the author Ravi.

2 For other officers, see the *Padyāvalī*, No. 76 :—

राजवलभ शिवसिंघो मति सिरिमहेसर
रेणुकदेवि रमान ॥ ७ ॥ see also Nos. 609 and 803.

No. 333 :—

रूपिनिदेविपति मति सिरिरतिधर्
सकलकला रस जाने ॥ १० ॥

No. 357 :—

जयमतिदेवि वर सन गहि सङ्कर
बुझए सकल रस भावे ॥ ८ ॥

3 The *Puruṣa-parikṣā*, the final verse :—

यो गौडेश्वरगज्जनेश्वररणक्षोणिषु लब्ध्वा यशो
दिक्कान्ताचयकुन्तलेषु नयते कुन्दस्रजामास्पदम् ।
तस्य श्रीशिवसिंहदेवनृपतेर्विज्ञप्रियस्याज्ञया
ग्रन्थं ग्रन्थिलदण्डनीति विषये विद्यापतिर्व्यातनोत् ॥ [२ ॥]

and the *Saiva-sarvvasva-sāra*, introd. verse 5 (Mitra, VI. p. 3) :—

क्षोणिभर्तुरमुष्य वैरिवनितावैदग्ध्यदीक्षागुरो-
रुद्भूतः शिवसिंहदेवनृपतिर्वीरावतंसः सुतः ।
शौर्य्यावर्ज्जितगौडमज्जनमहीपालोपनीतोन्नता-
नेकोत्तुङ्गगजाश्वकनककक्षाभिरामोदयः ॥ [५ ॥]

4 For the copper-plate grant, see J.A.S.B., 1895, pp. 143-4 and plate III. For a discussion of its date, Grierson, J.A.S.B., 1899, p. 96. The date is given at the end of the plate and runs as सन ८०७ संवत १४५५ शाके १३२१ [॥]

picious, as that era was not used in any part of Eastern India. The only authentic date about Śivasiṁha is La. saṁ 291 when he was ruling Tīrabhūkti, and when a MS. of Śrīdhara's *Kāvyaprakāśa-viveka* was copied by order of Vidyāpati.[1] Vidyāpati's verse dates the death of Devasiṁha in La. saṁ 293 (March 23rd 1413 A.D.), which, if true, indicates that Śivasiṁha was ruling jointly with his father.[2]

In the *Padāvalī* we come across Tripurasiṁha, his son Arjuna Rāya the husband of Kamalādevī and of Guṇādevī, and also across another prince, Amarasiṁha, husband of Jñānadevi.[3] According to tradition Tripurasiṁha was brother of Śivasiṁha and father of Amarasiṁha. We get from Vidyāpati's *Likhanāvalī* that Arjuna was killed by Purāditya, the patron of Vidyāpati.[4] This event must have taken place on or before La. saṁ 299 (1417-8 A.D.), a date mentioned several times in the sample forms of letters given in that work.

The *Padāvalī* mentions also one Rudrasiṁha and one Rāya Dāmodara,[5] but furnishes no further information about

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[1] Ind. Gov. MS., fol. 117a; see *supra*, note 2 on page 418. Gajarathapura, the place where this MS. was copied, is by tradition identified with Śivasiṁhapura on the Vāgvatī, and is said to have been founded by Śivasiṁha.

[2] The *Padāvalī*, p. 531, see *supra*, note 3 on p. 418.

[3] The *Padāvali*, No. 99 :—

भनइ विद्यापति बुझ रसमन्त ।
राए अरजुन कमलादेवि कन्त ॥ १० ॥

No. 300 :—

अबय जुवति गति कमलादेविपति
मन रस अरजुन राए ॥ ७ ॥

No. 721 :—

भनइ सरसकवि रस सुजान ।
त्रिपुरसिंहसुत अरजुन नाम ॥ ६ ॥

No. 725 :—

अरजुनराए चरण पए सेवहि
गुणादेवि रानि कन्ता ॥ १० ॥

No. 723 :—

भने विद्यापति रितु वसन्त ।
कुमर अमर ज्ञानादेइ कन्त ॥ १० ॥

[4] The end verse of the *Likhanāvali* attributes the work to Purāditya :—

संग्रामेऽर्ज्जुनभूपतिव्विनिहतो बन्धौ नृशंसायित
स्तेनेयं लिखनावली नृपपुरादित्येन निर्म्मापिता ॥ [१ ॥]

[5] The *Padāvali*, No. 612. Cf. Sanskrit C3 (p. 525) :—

रुदइसिंह बर ।
मेदिनि कलपतरु ॥ १६ ॥

No. 120 :—

चिरे जिवे जिवतु राए दामोदर
देश सए अवधान ॥ ६ ॥

them. Some Mahomedans are also named, such as Gyāsadeva Suratāna (probably Sultān Ghiyās-ud-din 'Azam who ruled Bengal between 1390 and 1412 A.D.), Malik Bahāradin and Ālam Shāha.[1] The verses about the Bengal Sultāns, Rāya Nasrat Shāha (Nos. 34 and 44), and Shāha Husein (No. 484) must be spurious. They ruled a century later.

9. PADMASIṀHA.

Younger brother of Śivasiṁha and his successor. He is named in Vidyāpati's *Śaiva-sarvvasva-sāra*, which was compiled at the instance of his queen Visvāsadevī, presumably when Padmasiṁha was ruling Mithilā.[2] No viruda of this king is known, and no further information is available. Probably he died childless.

10. HARASIṀHADEVA.

The elder branch disappeared with Padmasiṁha. His successor was Harasiṁhadeva, the younger son of Bhavasiṁha, and the younger brother of Devasiṁha. His name appears in Vidyāpati's *Vibhāga-sāra*, Vācaspati Miśra's *Kṛtya-mahārṇava*[3] and the *Mahādāna-nirṇaya*, Misaru Miśra's *Vivāda-candra*, and Varddhamāna's *Gaṅgā-kṛtya-viveka*.[4]

Neither his viruda, nor the name of his queen, has been as yet found. He must have been pretty old at the time of his accession, and therefore could not have ruled long. He should be distinguished from his namesake of the Karṇāṭa dynasty.

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[1] No. 268 :—

महलम जुगपति चिरंजिव जीवथु
ग्यासदेव सुरतान ॥ ८ ॥

For Ghiyās-uddin 'Azam, see my article on *Gaur*, J.A.S.B., 1909, pp. 220-2. For Malik Bahāradin, said to be a singer of Delhi, see No. 438, and Alam Shāha No. 96 (p. 529)

[2] The *Śaiva-sarvvasva-sāra*, introd. verses 6 to 8 :—

संग्रामाङ्गणसीमभीम सहसश्लस्यानुजस्संभ्रम-
द्दानस्खलितकल्पवृक्षमहिमाऽसौ पद्मसिंहो नृपः ॥ ५६ ॥
पत्युः सिंहासनस्था पृथुमिथिलमहीमण्डलं पालयन्ती
श्रीमद्विश्वासदेवी जगति विजयते चन्द्रधारुन्धतीव ॥ [८ ॥]

[3] The *Vibhāga-sāra* (R. Mitra, *Notices*, VI, p. 68, No. 2037), introd. verse 2 :—

राज्ञोभवेशाद्धरि (र)सिंह आसीत् ; the *Kṛtya-Mahārṇava* (R. Mitra, *Notices*, V, 202, No. 1886), and the *Mahādāna-nirṇaya* (Nepal MSS., p. 122), introd. verse 3 :—

संग्रामसीमनि भटांश्छिदशीकरिष्यन् आविर्बभूव तनयो हरसिंहदेवः ॥ [३ ॥]

[4] The *Vivāda-candra* (Sans. Coll. *Cat.*, II, 116), introd. verse 3.

11. NṚSIṀHA OR NARASIṀHADEVA.

Son and successor of Harasiṁhadeva. He had the viruḍa *Darpa-nārāyaṇa.* By his name or by his viruḍa he is mentioned in several works, e.g., in Vidyāpati's *Dāna-vākyāvalī* and *Durgā-bhakti-taraṅgiṇī*, in Vācaspati Miśra's *Kṛtya-mahārṇava*, *Vyavahāra-cintāmaṇi* and *Mahādāna-nirṇaya*, in Misaru Miśra's *Vivāda-candra*, in Rucipati's *Anargha-Rāghava-ṭīkā*, in Varddhamāna's *Gaṅgā-kṛtya-viveka*, and in Gadādhara's *Tantra-pradīpa.*[1] He should be distinguished from his namesake of the Karṇāṭa dynasty.

Two of his queens are known, Dhīramati by whose order Vidyāpati wrote the *Dāna-vākyāvalī*, and Hīrā, mother of Candrasiṁha, mentioned in Misaru's *Vivāda-candra.*[2]

12. DHĪRASIṀHA.

Narasiṁhadeva left several sons, of whom the eldest Dhīrasiṁha succeeded him. He had the viruḍa *Hṛdaya-nārayaṇa.* He is mentioned in Vidyāpati's last work, the *Durgā-bhakti-taraṅgiṇī*, in Vācaspati Miśra's *Vyavahāra-cintāmaṇi*, in Madhusūdana Miśra's *Jyotiḥ-pradīp-āṅkura*, and in Gadādhara's *Tantra-pradīpa.*[3] This prince Gadādhara was a son of Rāgha-

तस्मादननोजनि सूनुसारो धीमानुमासूनुसमानसारः ।
राजोपजीव्यो हरसिंह नामा ततो नृपो दर्पनारायणोऽभूत् ॥ [३ ॥]

and the *Gaṅgā-kṛtya-viveka* (Br. Mus. *Cat.*, p. 75), introd. verse 1:—

संजज्ञे हरसिंहभूपतिरतोजातो नृसिंहो नृपः ।

[1] It is unnecessary to burden the footnote with extracts from all these works. See the *Dāna-vākyāvalī* (R. Mitra, *Notices*, V, 137, No. 1830; R. Bhandarkār's Rep. for 1883-4, p. 352; I. G. MS. 5545); the *Durgā-bhakti-taraṅgiṇī* (Ind. Govt. Newari MS. 4860 fol. 1a), introd. verse 3:—
स्वस्ति श्रीनरसिंहदेव मिथिलाभूमण्डलाखण्डलो etc., and the end verse No. 2:—
भूप श्रीभवसिंहवंशतिलकः श्रीदर्पनारायणः .

The *Vivāda-candra* and the *Gaṅgā-kṛtya-viveka* have been quoted already in note 4 on the previous page.

For Rucipati's mention of Narasiṁhadeva, see the Nirṇayasāgara Press edition of the *Anargha-Rāghava-ṭīkā*, introd. verse 2, p. 2:—

अभूदभूतप्रतिपक्षभीतिः सदा समासादित भूरि नीतिः ।
चिरं कृतार्थी कृतभूमिदेवः स्फुरत्प्रतापो नरसिंहदेवः ॥ [२ ॥]

[2] The *Dāna-vākyāvalī*, introd. verse 4:—

विज्ञानुज्ञाप्य विद्यापतिमतिकृतिनं सम्प्रमाणामुदारां
राज्ञी पुण्यावलोका विरचयति नवां दानवाक्यावलीं सा ॥ [६ ॥]

and the *Vivāda-candra*, introd. verse 4:—

दर्पनारायण नृपतेः श्रीमद्धीरा महादेवी ।
अलभत सुनयं तनयं नरपति गुणराजिपरितं शूरम् ॥ [४ ॥]

[3] The *Durgā-bhakti-taraṅgiṇī* was compiled by order of Dhīrasiṁha and praises both him and his younger brothers Bhairavasiṁhadeva and

vendra, who was son of the king Dhīrasiṁha. In Vidyāpati's *Padāvalī* are named a Rāghavasiṁha and his two wives Modavatī and Sonamati.[1] Is he to be identified with this Rāghavendra?

Dhīrasiṁha is said to have dug out a tank and to have given gifts to Brahmins of horses, cows more than one hundred, and golden bracelets.[2]

One authentic date exists for Dhīrasiṁha's rule. On Saturday, new moon of the month Kārttika in Lakṣmaṇasena year 321, a MS. of Śrīnivāsa's *Setu-darpaṇi* (a commentary on

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Candrasiṁha. See the introd. verses 4 and 6, the final verses 2 and 4, and the final colophon for Dhīrasiṁha (Ind. Govt. MS. 4760 end, fol. 99a-b) :—

यावद्दुर्गातरङ्गस्तरयति जटामण्डलं चन्द्रमौले-
रर्द्धाङ्गे यावदुच्चै च निवसति दृढ़प्रेमावद्धा भवानी।
मल्लीमालानुकारे शिरसि शशीकला यावदेतस्य तावत्
कीर्त्ति श्रीधीरसिंह क्षितिपतितिलकस्थेयमुर्व्व्यां चकास्तु ॥ [४ ॥]

इति समस्तप्रक्रियाविराजमानमानदलितरिपुराजाधिराजशिवभक्तिपरायण-श्रीदर्पनारायणदेवात्मज समस्तप्रक्रियालंकृतनृपतिवरधी(धी)रसिंहदेवानां समरविजयिनां कृतौ श्रीदुर्गाभक्तितरङ्गिणी परिपूर्णा ॥

The *Tantra-pradīpa*, final verse 1 (R. Mitra, *Notices*, VI, 233, No. 2172) :—

प्राभूद्भू देवराजो जितरिपुनृपतिदर्पनारायणाख्य-
स्तस्यापि द्वौ तनुजौ हरिहरविभवौ रामसौमित्रमित्रौ।
तत्र श्रीधीरसिंहः कृतमदन + + + कणीयान्
पारीन्द्रो येन सद्योद्धुतविपुलमदो द्रावितो रावणेन्द्रः ॥ [१ ॥]

[1] The *Tantra-pradīpa*, final verses 2 and 5 :—

श्रीधीरसिंहात्मजराघवेन्द्रतनुप्रसूतस्य गदाधरस्य।
तन्त्रप्रदीपे समपूरि पञ्चविंश प्रकाशो भुवन प्रकाशः ॥ [५ ॥]

For Rāghava, see the *Padāvalī* No. 700 :—

भनहिं विद्यापति शुनु परमान।
बुझ नृपराघव नव पचवान ॥ १० ॥

No. 724 :—

भनहि विद्यापति बुझ रसमन्त।
राघवसिंह सोनमतिदेवि कन्त ॥ ७ ॥

No. 748 :—

मोदवतीपति राघवसिंहगति
कवि विद्यापति गाइ ॥ १० ॥

Its language is suspiciously modern, according to the editor.

[2] Ind. Off. *Cat.*, p. 1006. No. 3004, *Jyotiḥ-pradip-āṅkura*, end verse No. 1.

येनाखाति सरोवरं सुविमलं येन प्रदत्ता हया
गावो येन शताधिकाः पुररमा दत्ता द्विजेभ्यो मुदः।
दत्तं येन सुवर्णकङ्कणमहादानादिदानं वरं
तस्मिन् शासति धीरसिंहनृपतौ श्रीतीरभुक्तिं वरां ॥ [१ ॥]

the Prākrta poem *Setu-bandha*) was copied, while Dhīrasiṁha was ruling Tīrabhūkti.[1] In 1438 A.D., the Kārttika new moon fell on Saturday (18th October) as given.

13. BHAĪRAVA, BHAĪRAVENDRA OR BHAĪRAVASIṀHADEVA.

The younger brother and successor of Dhīrasiṁha. Dhīrasiṁha had at least one son, Rāghavendra. It is not known how Bhairavendra came to oust him out of the throne. But in the *Durgā-bhakti-taraṅginī* Bhairavendra is highly praised, and from his viruḍa given *Rūpa-nārāyaṇa*, it is not improbable that he was ruling jointly with Dhīrasiṁha at the time, just as Śivasiṁha is said to have been ruling with his father Devasiṁha.[2] He appears to have assumed, probably when he became the sole ruler, the other viruḍa *Hari-nārāyaṇa.* By his name or his later viruḍa he is mentioned in other works, such as Rucipati's *Anargha-Rāghava-ṭīkā*, in Vācaspati Miśra's *Dvaita-nirṇaya*, *Kṛtya-mahārṇava*, *Mahādāna-nirṇaya*, *Śudrācāra-cintāmaṇi* and *Pitṛ-bhakti-taraṅginī*, and in Varddhamāna's *Daṇḍa-viveka*, and *Gaṅgā-kṛtya-viveka.*[3]

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[1] The *Setu-darpaṇī*, final colophon :—

परमभट्टारकेत्यादिमहाराजाधिराजश्रीमल्लक्ष्मणसेनदेवीयैकविंशत्यधिक शत-
त्रयतमाब्दे कार्त्तिकामावस्यायां शनौ समस्तप्रक्रियाविराजमानरिपुराजकंसनारायण
शिवभक्तिपरायणमहाराजाधिराजश्रीश्रीमद्धीरसिंहसम्भुज्यमानायां तीरभुक्तौ चला-
पुरतपाप्रतिबन्ध(द्ध)सुन्दरीग्रामे वसता सदुपाध्याय श्रीसुधाकराणामात्मजेन काव
श्रीरत्नेश्वरेण स्वार्थं परार्थञ्च लिखितमिदं सेतुदर्पणीपुस्तकामिति [॥]

For this date extract I am indebted to Paṇḍit Haraprasad Shastri. Dhīrasiṁha is here given the viruḍa *Kaṁsa-nārāyaṇa*, an epithet also suggested in the introductory verse 6 of the *Durgā-bhakti-taraṅginī*, and adopted later on by Lakṣminātha :—

देवीभक्तिपरायणः श्रुतिमुखप्रारब्धपारायणः
संग्रामे रिपुराज कंसदलनप्रत्यक्षनारायणः ।
विश्वेषां हितकाम्यया नृपवरोऽनुज्ञाप्य विद्यापतिं
श्रीदुर्गोत्सवपद्धतिं स तनुते दृष्ट्वा निबन्धस्थितिं ॥ [६ ॥]

[2] I. G. MS. 4760, fol. 1a, the introd. verse 5 and the end verse No. 2 :—

शौर्य्यावर्जितपञ्चगौडधरणीनाथोपनम्रीकृता-
ऽनेकोत्तुङ्गतरङ्गमङ्गतसितच्छत्राभिरामोदयः ।
श्रीमद्भैरवसिंहदेवनृपतिर्यस्यानुजन्मा जय-
त्याचन्द्रार्कमखण्डकीर्त्तिसहितः श्रीरूपनारायणः ॥ [५ ॥]

[3] The *Anargha-Rāghava-ṭīkā* (Nirṇ. Sag. ed.), p. 2, introd. verse 3 :—

हनुमस्य वसुंधरापरिहृढस्यानन्दकन्दः क्षिते-
राधारो जगतामशेषविदुषां विश्रामकल्पद्रुमः ।
दाने कर्णकथा वलेपनिपुणः संग्रामरत्नाकुरो
भूमिपालशिरोमणिर्विजयते श्रीभैरवेन्द्रो नृपः ॥ [२ ॥]

It is needless to quote other references.

Only one queen's name is found, Jayā (or Jayātmā). She was mother of Rājādhirāja Puruṣottamadeva, and at her instance Vācaspati wrote the *Dvaita-nirṇaya*, on the doubtful points of smṛti.[1]

Bhairavendra well patronized the Sanskrit learning. Under his patronage Rucipati wrote his commentary, Vācaspati Miśra compiled the *Vyavahāra-cintāmaṇi*, the *Kṛtya-mahārṇava* and the *Mahādāna-nirṇaya*, and Varddhamāna Upadhyāya composed the *Daṇḍa-viveka*.[2] Vācaspati was his *pariṣad* or officer, and Varddhamāna his *dharmādhikaraṇika* or judge.[3]

During the rule of Dhīrasiṁha Bhairava had by his valour already subjugated the lord of Pañca-Gauṛa. He is said to have influenced Kedāra Rāya, the representative (*pratiśarīraṁ*) of the lord of Gauṛa.[4] He dug out hundreds of tanks, gave

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[1] The *Dvaita-nirṇaya* (R. Mitra. *Notices*, I. p. 149, No. 275), introd. verses 5 and 7 :—

विष्णो र्वक्षः पुरमिव शम्भोरिव देहवामार्द्धे ।
देवी सनाभिरेषा जयति जयात्मा महादेवी ॥ [५ ॥]
श्रीभैरवेन्द्रधरणीपतिधर्म्मपत्नी राजाधिराजपुरुषोत्तमदेवमाता ।
वाचस्पतिं निखिलतन्त्रविदं नियुज्य द्वैते विनिर्णयविधिं विधिवत्तनोति ॥[७ ॥]

[2] See the colophons of *Anargha-Rāghava-ṭīkā* :—

इति समस्तप्रक्रियाविराजमानरिपुराजकंसनारायणभवभक्तिपरायणश्रीहरिनारा-
यणपदसमलंकृतमहाराजाधिराजश्रीमद्भैरवसिंहदेवनिदेशप्रोत्साहितवैजोलीग्रामवा-
स्तव्यखौवालवंशप्रभवश्रीरुचिपतिमहोपाध्यायविरचितायामनर्घराघवटीकायां सप्त-
मोऽङ्कः ॥

Bhairavasiṁha, like Dhīrasiṁha, is here given the additional viruda *Kaṁsa-nārāyana*. For Vācaspati Miśra's works one quotation will suffice, viz., the introd. verse 8 in the *Mahādāna-nirṇaya* (Nep. *Notices*, p. 123) :—

श्रीवाचस्पतिधीरं सहकारितया समासाद्य ।
श्रीभैरवेन्द्रनृपतिः स्वयं महादाननिर्णयं तनुते ॥ [८ ॥]

See the *Daṇḍa-viveka* (As. Soc. MS., I. B. 41, page 1), introd. verse 5 :—

उच्चं खलप्रबलखंडनपंडितेन
श्रीभैरवेण मिथिलापृथिवीश्वरेण ।
तेनानुकम्प्य सकृदप्यवलोक्यमाना
श्रीवर्धमानकृतिनोऽस्तु कृतिः कृतार्था ॥ [५ ॥]

[3] See the final colophons of the *Śudr-ācāra-cintāmaṇi* (R. Mitra, *Notices*, VI, p. 22, No. 20015) and the colophons of the *Daṇḍa-viveka* (As. Soc. MS., pp. 48, 59, 66, 80, 108).

[4] See *supra*, note 2 on the previous page, and the *Daṇḍa-viveka*, introd. verse 4 (As. Soc. MS., p. 1) :—

यः श्रीकुसेनमुपनीतसमस्तसेनम्
आत्मीय सैनिकमिवात्मनवे नियुंक्ते ।
गौडेश्वरप्रतिशरीरमतिप्रतापः
केदाररायमवगच्छति दारतुल्यं ॥ [४ ॥]

towns and *pattanas* (hamlets), and performed the Tulāpuruṣa gift ceremony.[1]

Bhairavendra had a younger brother by name Candrasiṁha, who is named in Vidyāpati's *Durgā-bhakti-taraṅginī*, and Misaru Miśra's *Vivāda-candra* and *Padārtha-candra*.[2] He was probably a step-brother, for Gadādhara in his *Tantra-pradīpa* mentions only two sons of Darpanārāyaṇa (Narasiṁhadeva), viz. his own grandfather Dhīrasiṁha and Bhairavendra,[3] and he would not have omitted Candrasiṁha, if the latter had been their uterine brother. Candrasiṁha had a wife named Lakhimādevī or Lachimā Mahādevī, at whose instance Misaru Miśra wrote his two works.[4]

14. RĀMABHADRADEVA.

The son and the successor of Bhairavendra. He had the viruda *Rūpa-nārāyaṇa*, a title also given to his father by Vidyāpati and to his ancestor Śivasiṁha. By name or viruda he is mentioned by Vācaspati Miśra, Varddhamāna, Gadādhara and the Āndhra (Telugu) Bhaṭṭa Śrīrāma.

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[1] The *Mahādāna-nirṇaya* (Nep. *Notices*, p. 112), introd. verse 7 :—

विधाय सरसी शतं नगरपत्तनादीनदात्
विजित्य रिपुभूपतीनदीत यस्तुलापूरुषान् ।
स एष रूपभैरवः समरसीम्नि पञ्चाननो
जयत्यविधिदारको जगति राजवृन्दारकः ॥ [७ ॥]

[2] The *Durgā-bhakti-taraṅginī* (Ind. Govt. MS. 4760, fol. 99a), end verse 3 :—

यस्य क्षीरसमुद्रमुद्रयशसो रामस्य सौमित्रिवत्
क्षौणीमण्डलमण्डनो विजयते श्रीचन्द्रसिंहोऽनुजः ॥ [३ ॥]

The *Vivāda-candra* (Sans. Coll. MS. II. 1107, fol. 1a), introd. verses 4 and 5, and the *Padārtha-candra* (R. Mitra, *Notices*, IX, p. 12, No. 290). In Vidyāpati's *Padāvalī* is included a song of one Bhānu (No. 322) wishing long life to Candrasiṁha :—

चन्द्रसिंह नरेश जीवतु
भानु जम्पए रे ॥ ५ ॥

[3] The *Tantra-pradīpa* (R. Mitra, *Notices*, VI, p. 233, No. 2172), the final verse No. 1; see note 3 on page 424.

[4] The *Vivāda-candra* (Sans. Coll. MS. II. 117, fol. 1a), introd. verse 5 :—

श्रीमल्लखिमादेवी तस्य चन्द्र[सिंह] नृपतेर्दयितस्य ।
मिसरुमिश्रद्वारा रचयति विवादचन्द्राभिरामं ॥ [५ ॥]

and the *Padārtha-candra*, introd. verse 2 :—

श्रीचन्द्रसिंहनृपतेर्दयिता लखिमा महादेवी ।
रचयति पदार्थचन्द्रं मिसरुमिश्रोपदेशेन ॥ [२ ॥]

The affix *candra* is evidently derived from the name of his patron's husband.

Rāmabhadra followed the footsteps of his father in encouraging the study of Sanskrit. Under his patronage Vācaspati Miśra, his *pariṣad*, wrote in his old age probably his last smṛti work, the *Pitṛ-bhakti-taraṅginī*, and Varddhamāna compiled at his instance the *Gaṅgā-kṛtya-viveka* and the *Tattv-āmṛta-sār-oddhāra*.[1] Śrī Rāma Bhaṭṭa while on pilgrimage went from Gayā to Tīrabhukti apparently attracted by the fame of this Brahmin king, and after paying a visit to the king returned to Prayāga (Allahabad), a fact which he noted at the chapter ends of his commentary on the *Sārasvata grammar*.[2]

Rāmabhadra must be older than La. saṁ 376, Pauṣa vadi 13 Wednesday (13th January, 1496 A.D.) when the copying of the MS. of the *Gaṅgā-kṛtya-viveka* was completed. Furthermore Gadādhara wrote the *Tantra-pradīpa* while Rāmabhadra was ruling, and was therefore his contemporary.[3] At the instance

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[1] See the *P. bh. Taraṅginī* (Ind. Govt. MS. 897, fol. 84a), the final colophon :—

इति श्रीमहाराजाधिराजश्रीहरिनारायणात्मजश्रीरूपनारायणपदवीमलङ्कृत-मिथिलामंडलश्रीरामभद्रचरणादिष्टेन परिषदा श्रीवाचस्पतिशर्म्मणा विरचितोऽयं श्राद्धकल्पः परिपूर्णः ।

For Varddhamāna, see the *G. k. viveka* (Br. Mus. *Cat.*, pp. 75-6), introd. verse 2 and 4 and the final colophon :—

तस्माद् भैरवसिंहभूपतिरभूत् श्रीरामभद्रोस्ततो
दीपाद्दीपइवाभवत् स इव सद्राजां गुणैरर्ज्जितः ॥ [२ ॥]
कृते तस्य कृतज्ञस्य गङ्गाकर्त्तव्यकर्म्मणाम् ।
विवेकमुद्द्योतयति वर्द्धमानो यथागति ॥ [४ ॥]

The final colophon (p. 76) :—

इति महाराजाधिराजश्रीहरिनारायणात्मजमहाराजाधिराजश्रीमद्रामभद्रदेव-पादानां कृते श्रीवर्द्धमानकृतो गङ्गाकृत्यविवेकः समाप्तः ॥ लसं ३७६ पौषवदि १३ बुध वेलौनीग्रामे कुषपन्डोग्रामीणोपाध्याय श्रीमुरारीणा लिखितैषा पुस्तीति ॥ The *Tattv-āmṛta-sār-oddhāra* (R. Mitra, *Notices*, VI, p. 57, No. 2030), end verse 4 :—

तस्माच्चतुर्भिरेभिः कुसुमैरिव गुम्फितो गुणोपहितैः ।
मालेवैष निबन्धो रामपतेः कण्ठभूषणं भवतु ॥ [४ ॥]

The king is here called Rāmapati.

[2] For Sri Rāma Bhaṭṭa's visit, see the *Vidvat-prabodhinī* (Ind. Off. *Cat.*, p. 214, No. 804) :—

गयाया निर्गतो रामस्तीरभुक्ताख्यदेशपं ।
रूपनारायणं विप्रं सन्तुष्टं स्वगिराकरोत् ॥
रूपनारायणाद् भूपादाज्ञां प्राप्य सुतान्वितः ।
तीरभुक्ताख्यादेशात्स प्रयागं समुपागतः ॥

[3] For the *Gaṅgā-kṛtya-viveka*, see note 1. The *Tantra-pradīpa* (Mitra, No. 2172), end verse 3 :—

भूपः श्रीरामभद्रो धरणिमुरतय भैरवेन्द्रात्मजन्मा
चौणीमेतामिदानीं चतुरुदधि + + पूरसीमां प्रशास्ति ॥ [३]

of this prince Gadādhara, a MS. of Bhojadeva's *Vividha-vidyā-vicāra-catura* was copied on Friday Śrāvaṇa vadi 1 of La. saṁ. 372; and a MS. of the *Dāna-kāṇḍa* of the *Kṛtya-kalpa-taru* was copied in Śaka 1426 and La. saṁ 374 Kārttika śukla 5 Wednesday.[1] Gadādhara was therefore living in 1489-93 A.D., and Rāmabhadradeva cannot be placed later than 1490 A.D.

This king has been wrongly identified by Professor Bendall with Rāmasiṁhadeva of the Karṇāta dynasty.[2]

15. LAKṢMĪNĀTHADEVA.

This king's relation to Rāmabhadradeva cannot be traced in any authentic records. According to tradition he was the son and successor of Rāmabhadradeva. He used the viruda *Kaṁsa-nārāyaṇa.* Under his patronage, Harapati Āgamācārya compiled the Tantric work *Mantra-pradīpa.*[3]

Harapati was son of Rucipati who had been patronized by Bhaīravendra, and so Lakṣmīnātha cannot be far off in time from that king. A Maithila MS. of the *Devi-māhātmyaṁ* was copied during his reign on Wednesday, La. saṁ 392 Pauṣa vadi 3, or December, 1510 A.D.[4] So this king was ruling at least in 1510 A.D.

Lakṣmīnātha evidently came into collision with the powerful Sultān Sikandar Lodi of Delhi. In the peace concluded

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[1] Nepal *Notices*, p. 65:—समस्तेत्यादि महाराजाधिराजवरकुमारश्रीमद्गदाधरदेवपादानामाज्ञया श्रीशुभपतिभिर्लिखितमिदं पुस्तकमिति । लसं ३७२ । श्रावण वदि १ शुक्रे श्रीरत्नधरनगरे । Ind. Govt. MS. 4026, fol. 131a:—लसं ३७४ कार्त्तिक शुदि ५ बुधे चजिनौलीग्रामे समस्तप्रक्रिया विरा + + (जमा)ने महावरकुमारश्रीमद्गदाधरसिंहदेवपादानामाज्ञया श्रीशुभपतिना लिखितमिदं पुस्तकमिति॥ शाके १४२६ ॥ Then (at the end) गत लक्ष्मणसेनदेवीय चतुःसप्ताधिक शतत्रयाब्दीय कार्त्तिकशुक्लपञ्चम्यां रौहिणेये [॥] Both the MSS. were written by the same copyist, Śubhapati.

[2] The *History of Nepal* by C. Bendall, J.A.S.B., 1903, p. 19.

[3] The *Mantra-pradīpa* (R. Mitra, *Notices*, VI, pp. 34-5), introd. verse 4 and the final colophon:—

श्रीकंसनारायणभूमिपालः सानुग्रहो मे कुरुते निदेशम् ।
मन्त्रप्रदीपं कुरु सत्वरं त्वं यद्दर्शने मे भवति प्रमोदः ॥ [४ ॥]

Its final colophon:—इति समस्तप्रक्रियाविराजमानशिवभक्तिपरायणमहाराजधिराजश्रीमत्कंसनारायणश्रीमल्लक्ष्मीनाथदेवनिदेशप्रोत्साहिताज्ञया बीजालीग्रामवास्तिविख्यातखोयालग्रामीणमहामहोपाध्यायश्रीरुचिपतिशर्म्मात्मजागमाचार्य्यश्रीहरपतिविरचिते मन्त्रप्रदीपे पञ्चदशः पटलः समाप्तः ॥

[4] Nepal *Notices*, p. 63, final colophon:—

लसं ३९२ पौष वदि ३ बुधे महाराजाधिराजश्रीकंसनारायणदेवप्रचारेण...... श्रीउदयकरेण लिखितैषा पुस्तीति ॥

between Alā-ud-dīn Husāiṅ S̱hāh and Sikandar Lodi in H. 901 (1496 A.D.) Bihar and Tirhut appear to have been allotted; to the latter, on condition that he would not invade Bengal.[1] Sikandar Lodi then fell on Tirhut, and reduced its king to submission.

After this Tirhut continued to be under the over-lordship of Delhi. On the defeat and death of Ibrahim Lodi son of Sikandar at the battle of Pānipat in H. 932 or 1526 A.D., Babar became the Emperor of Delhi. He has left in his Memoirs a list of countries subject to him and their approximate revenues. In this list appears Tirhut (No. 23), whose Raja paid a tribute of 250,000 silver ṭaṅkās and 2,750,000 black ṭaṅkās or at 10 per silver ṭaṅkā 275,000, in all 525,000 silver ṭaṅkās.[2] It would thus appear that Tirhut remained under the Hindu Rāja in his time subject to the payment of a *Khidmatānā* or tribute.

It is not known how this dynasty came to an end. For facility of reference a genealogical chart of the whole family is given in the Appendix B.

GENERAL CULTURE DURING THE RULE OF THIS DYNASTY.

The above brief summary shows that Sanskrit learning was not neglected by these kings. Though no dominant figure is visible, like Gaṅgeśa Upādhyāya in Nyāya, Caṇḍeśvara Ṭhakkura in Smṛti, and Padmanābha Datta in grammar, the learning was spread among a larger number of persons, and the writers did not confine themselves to any single branch. The four most prominent names during the rule of this dynasty are Jagaddhara, Vidyāpati, Śaṅkara Miśra and Vācaspati Miśra. Jagaddhara commented not only on works of such wide variety as the religious *Gitā* and *Devī-māhatmya*, the lyrical *Meghadūta* and *Gīta-govinda*, the dramatic *Mālati-Mādhava* and *Veṇi-saṁhāra*, the prose romance *Vāsava-dattā* and the rhetorical *Sárasvatī-kaṇṭh-ābharaṇa*, but he also wrote original treatises on erotics (the *Rasika-sarvvasva*) and on music (the *Saṁgīta-sarvvasva*). Vidyāpati's name has come down to posterity in connection with Maithilī songs, such as the *Kīrtti-latā*, the *Kīrtti-patākā* and specially the anthology *Padāvalī*, songs that stirred up the later Vaiṣṇava writers and preachers of Bengal. But he wrote also on smṛti (*Vibhāga-sāra*, *Gaṅgā-vākyāvalī* and *Dāna-vākyāvalī*), on Niti or moral tales (*Bhū-parikramaṇa* and *Puruṣa-parikṣā*), on Pujā (*Śaiva-sarvvasva-sāra* and *Durgā-bhakti taraṅginī*), and on literary compositions (*Likhanāvalī*).

[1] Badaoni, vol. I, pp. 415-7; *cf. Makhzan-i Afghānī*, translation by Dorn, 1829, Part I, p. 59, and Part II, p. 96.

[2] The *Chronicles of the Pathan Kings of Delhi*, Thomas, p. 391, quoting Erskine's *Babar*.

Similarly, Śaṅkara Miśra's forte lay in Vaiśeṣika philosophy and Nyāya (the *Vaiśeṣika-sūtr-opaskāra*, the *Nyāya-līlāvatī-kaṇṭhābharaṇa*, the *Ātma-tatva-viveka-kalpa-latā*, the *Ānanda-varddhana* and the *Bheda-prakāśa*). But he tried also other fields of learning such as smṛti (*Chandog-āhnik-oddhāra*, *śrāddha-pradīpa* and *Prāyaścitta-pradīpa*) and even drama (*Gaurī-digambara nāṭaka*).

Vācaspati Miśra, who figured so prominently during the rule of Bhairavendra and his son Ramabhadra, wrote mainly on smṛti, but could not avoid the general contagion, and touched also on Nyāya (the *Nyāya-sūtr-oddhāra*, the *Khaṇḍana-khaṇḍ-odhāra* and the *Anumāna-khaṇḍa-ṭīkā*), and on Nīti or morals (the *Nīti-cintāmaṇi*).

In fact this period is marked out from the previous periods by the gradual diffusion of Sanskritic knowledge, and by the first serious attempts in developing the vernacular literature. A period which saw the birth of the *Padāvalī* and its fine songs on Rādhā-Kṛṣna must take a front rank in the history of Indian vernaculars, and cannot be overlooked by those dealing with the history of Eastern India.

APPENDIX A.

The Karṇāṭa Dynasty.

(c. 1150-1395 A.D.)

In the Karṇāṭa kula—

Nānyadeva
(a contemporary of Vijayasena and of Jayacandra).
⋮
Harasiṁhadeva
(ruling up to 1326 A.D.).
⋮
Nṛsiṁha (deva).
⋮
Rāmasiṁhadeva
ruling in 1390 A.D.).

APPENDIX B.

THE DYNASTY OF KĀMEŚVARA.

(c. 1350-1515 A.D.)

- Kāmeśvara Rāja-paṇḍita.
  - Bhogīśvara = Padmā.
    - Gaṇeśvara (killed in La. saṁ 252).
      - Vīrasiṁha.
      - Kīrttisiṁha Rāyaguru.
  - Bhavasiṁha.
    - Devasiṁha, *Garuḍa-nārāyaṇa* = Hāsinidevī, (died on La. saṁ 293 or Śaka 1334).
      - Śivasiṁha, *Rūpa-nārāyaṇa* =(1) Lakhimā; (2) Sukhamā; (3) Madhumatī; (4) Suramā; (5) Rūpinī; (6) Medhā; (7) Modavatī, (ruling in La. saṁ 291).
      - Padmasiṁha = Visvāsa.
    - Tripurasiṁha.
      - Arjuna =(1) Guṇā; (2) Kamalā.
      - Amara = Jnāna.
    - Harasiṁha.
      - Narasiṁha, *Darpa-nārāyaṇa* =(1) Dhīramatī; (2) Hīrā.
        - Dhīrasiṁha (ruling in La. saṁ 321).
          - Rāghavendra.
            - Gadādhara (La. saṁ 372 and 374, a contemporary of Rāmabhadra).
            - others.
        - Bhairavasiṁha, *Hari-nārāyaṇa* = Jayā.
          - Rāmabhadra, *Rūpa-nārāyaṇa*.
            - Lakṣmīnātha, *Kaṁsa-nārāyaṇa* (ruling in La. saṁ 392).
          - Puruṣottama.
        - Chandrasiṁha = Lachimā.

A REPORT ON THE BIOLOGY OF THE LAKE OF TIBERIAS.

Fifth Series.

The Distribution and Origin of the Fauna of the Jordan River-System with special reference to that of the Lake of Tiberias . . . . N. Annandale, D.Sc., F.A.S.B.

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25. The Distribution and Origin of the Fauna of the Jordan System with Special Reference to that of the Lake of Tiberias.

By N. ANNANDALE, D.Sc., F.A.S.B.

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4. Some of the more recent and more important works on the Aquatic Animals of the Jordan System	471

Accepted views as to the geographical characters of the fauna of Palestine were thus expressed by the late Canon Tristram [1] in 1888:—

"An analysis of each class of its fauna and of its phanerogamic flora shows that while an overwhelming majority of its species in all cases belong to the Palaearctic region, there are in each class a group of exceptions and peculiar forms which cannot be referred to that region, and the presence of many of which cannot be explained merely by the fact of the Palæarctic infringing closely on the Æthiopian region, and not very distantly on the Indian; but can only be satisfactorily accounted for by reference to the geological history of the country. These species are, almost all, strictly confined to the area of the Jordan valley and Dead Sea basin."

In respect to invertebrates, and in so far as any zoogeographical statement can be said to have been proved, this statement may be regarded as substantially one of fact. With regard to the aquatic invertebrates of the Jordan system, however, there are certain anomalies. It is the main object of this paper to explain these anomalies.

The physical peculiarities of the Jordan river-system are well known and all that is necessary to do here is to touch briefly on those features that appear to have influenced the distribution of its fauna. The system, which runs almost due north and south and has a total length of about 170 miles, is a closed one, having no connection either with the sea or with any considerable body of fresh or normally salt water; it terminates in the Dead Sea. To the north its upper parts approach fairly close to two other shorter systems that open into the Mediterranean, namely that of the Nahr Litany (R. Leontes), which flows between the ranges of Lebanon and Anti-Lebanon through the valley of the B'ka (Coele-Syria), and that of the R. Barada,

[1] *Survey of Western Palestine:* Fauna and Flora, p. vi (1888).

which arises in large swamps in the desert east of Damascus. To the south the Dead Sea is separated by a considerable stretch of dry desert from any other body of water. The greater part of the Jordan system lies considerably below sea-level.

The geographical isolation of the Jordan would lead us, had it existed for any considerable period, to expect a much greater degree of specialization in the aquatic fauna than is actually found; but there is much evidence that in late Pliocene times that river was directly connected with the Indian Ocean and with some of the African systems. This evidence is discussed in the third part of the present paper. The low-lying sheltered position of the greater part of the Jordan Valley has produced an almost tropical climate and is perhaps to some extent the cause of the richness in species, more particularly in molluscs and fish, of the aquatic fauna.

The water of most of the system is more or less brackish or salt—a fact directly due to its geographical peculiarities. The salinity, however, is not sufficiently intense to have had any very great effect on the fauna, except in the Dead Sea, the water of which is poisonous as well as being strongly saline. The name of this lake expresses a literal fact.

The Jordan is connected also with two other lakes, through both of which it flows. These are L. Huleh, anciently known as the Waters of Merom, and the Lake of Tiberias or Sea of Galilee. The former, which is about 5 miles long and 3 miles broad, is very shallow and completely choked with vegetation.

The physical characters of the Lake of Tiberias are discussed briefly in the Introduction to the present series of papers and in greater detail in Barrois's Treatise on the Lakes of Syria.[1] The lake is about 14 miles long and probably nowhere more than about 50 metres deep. Its water, though distinctly brackish, is drinkable, the salinity being[2] "536 parts per million and the specific gravity 1·00043 $\left(\frac{24^\circ}{24^\circ}\right)$ or 0·99775 ($\frac{24^\circ}{24^\circ}$ in vacuo)."

I. LIST OF THE AQUATIC FAUNA OF THE TIBERIAS BASIN.

Species of which the names are marked with an asterisk are apparently endemic in the Jordan river-system: those forms whose names bear a dagger, in Syria and Palestine.

Porifera.

Ephydatia fluviatilis syriaca,† Topsent.

Nudospongilla reversa,* Annandale.

Nudospongilla mappa, Annandale.*

,, *aster*, Annandale.*

*Cortispongilla barroisi** (Topsent).

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[1] *Rev. biol. Nord France* VI, p. 224 (1894).

[2] Christie, *Journ. As. Soc. Bengal.* (n. s.) IX, p. 26) (1913).

Coelenterata.

Hydra viridis, Linné.

Turbellaria.

Planaria tiberiensis,* Whitehouse.
Planaria salina,* Whitehouse.
Planaria barroisi,* Whitehouse.

Rotatoria.

Branchionus patulus, Müller.
,, *capsuliflorus*, Pallas.
Asplanchnopus syrinx (Erhenberg).
Synchaeta oblonga, Ehrenberg.
Keratella quadrata (Müller).
,, *cochlearis* (Gosse).
Conochiloides dossuarius (Hudson).

Hirudinea.

Placobdella catenigera (Moq.-Tand.).
Herpobdella (*Dina*) *lineata concolor*,† Annandale.

Oligochaeta.

Criodrilus lacuum, Hoffmeister.
Helodrilus (*Dendrobaena*) *lacustris*,* Stephenson.
Helodrilus (*Dendrobaena*) *byblicus* † (Rosa).

Polyzoa.

Fredericella sultana jordanica, Annandale.
Plumatella auricomis, Annandale.

Hydrachnida.

Atax crassipes, Müller.
Hygrobates longipalpis, Hermann.

Ostracoda.

Limnicythere tiberiadis, Moniez.

Copepoda.

Cyclops leuckarti, Claus.
,, *serrulatus*, Fischer.
,, *macrurus*, Sars.
,, *varicans*, Sars.
Ectinosoma barroisi,* Richard.
Laophonte mohammed, Blanch. and Rich.
Canthocamptus hibernicus var. *incertus*,* Richard.
Diaptomus salinus, v. Daday.

Cladocera.

Diaphanosoma brachyurum (Levin).
Daphnia lumholtzi, Sars.
,, *magna*, Strauss.
Monia brachiata, Jurine.
Ceriodaphnia rigaudi, Richard.
,, *reticulata*, Jurine.
Bosmina longirostris, Müller.
Bosmina longirostris, var. *cornuta*, Jurine.
Macrothrix laticornis, Jurine.
Alona cambouei, de Guer. and Rich.
,, *affinis*, Leydig.
Chydorus sphaericus, Jurine.

Conchostraca.

Caenestheriella educta,* v. Daday.

Amphipoda.

Gammarus pungens, M.-Edw.
Gammarus syriacus,† Chevreux.
Orchestia platensis, Kroyer.

Isopoda.

Asellus coxalis,† Dollfuss.
Philoscia couchii, Kinahan.

Decapoda.

Atyaephyra desmarestii (Millet).
Typhlocaris galilea.* Calman.
Potamon potamios (Olivier).

Mollusca.

Gastropoda.

Lymnaea auricularia (Linn.).
,, *virginea*,* Preston.
Physa tiberiadensis,* Preston.
Melania tuberculata, Müller.
,, ,, var. *elongata*,* Locard.
Melanopsis costata (Olivier).
,, ,, var. *jordanica*,† Roth.
,, ,, var. *degenerata*,* Preston.
,, *buccinoidea*† (Olivier).
,, *praerosa* (Linn.).
Pyrgula barroisi,* Dtz.
Bithinia badiella,† Parr.
,, *gennesaretensis*,* Preston.
,, *semakhensis*,* Preston.
Bithinella contempta,† Dtz.
,, *annandalei*,* Preston.
,, *syngenes*,* Preston.
,, *galilaeae*,* Preston.
,, *vexillum*,† Preston.
Valvata saulcyi,† Brgt.
Theodoxis jordani† (Sowerby).
,, *bellardi*† (Mousson).
,, *bellardi** var. *michoni*† (Brgt.).

Lamellibranchiata.

Unio requieni, Mich.
,, *pietri*,* Locard.
,, *tiberianensis*, Let.
,, *tristrami*,* Locard.
,, *terminalis*, Brgt.
,, *jordanicus*,* Brgt.
,, *zabulonicus*,* Brgt.
,, *prosacrus*,* Brgt.
,, *littoralis*, Lk.
,, *ellipsoideus*,* Brgt.
,, *genezarethanus*,* Let.
Unio rothi,* Brgt.
,, *simonis*,† Tristram.
,, *galilaei*,* Locard.
,, *raymondi*,* Brgt.
,, *lorteti*,* Locard.
,, *chinnerethensis*,* Preston.
Corbicula fluminalis (Müller).
,, *cor*,* Lk.
,, *crassula*† (Mousson).
,, *syriaca*,† Brgt.
,, *filiciani*,* Brgt.

Pisces.

Blennius varus, Risso.
,, *lupulus*, Bonaparte.
Discognathus lamta rufus, Heckel.
Varicorhinus damascinus† (C. & V.)
,, *syriacus* (Gunther).
,, *socialis** (Heckel.)
,, *sauvagei** (Lort.).
*Barbus canis** C. & V.
,, *beddomei** (Gunther).
,, *longiceps*,* C. & V.
Leuciscus zaregi,* Heckel.
Alburnus sellal,† Heckel.
Nemichilus galilaeus, *Gunther.
,, *leontinae*,* Lort.
Clarias macracanthus (C. & V.)
Cyprinodon richardsoni,* Boulenger.
,, *sophiae*, Heckel.
,, *mento*, Heckel.
*Paratilapia sacra** (Gunther).
Tilapia magdalenae† (Lortet).
,, *zillii* (Gervais).
,, *nilotica* (Hsslqt.).
,, *galilaea* (Artedi).
,, *simonis** (Gunther).
,, *flavi-josephi** (Lortet).

Batrachia.

Rana esculenta ridibunda, Pallas.
Bufo viridis, Laur.
Hyla arborea savignyi, Aud.

Reptilia.

Clemmys caspica rivulata, Valenc.
Emys orbicularis (Linn.).

II. DISTRIBUTION OF THE AQUATIC FAUNA OF THE TIBERIAS BASIN.

A. Distribution in the Lake and its immediate Vicinity.

In his valuable treatise on the Lakes of Syria—a geographical heading under which he includes Palestine proper—

Theodore Barrois [1] has discussed the local distribution of the fauna of the Lake of Tiberias as he observed it in May, that is to say at the end of the wet season, when the water-level was at its highest. In October, at the end of the dry season, when the water had sunk about five feet below its maximum height, I did not find any great difference in this respect. The deepest point at which the French naturalist found macroscopic animals was 42 metres, while in my own dredgings it was not below 22 metres. This was probably due in part to the greater depth of the lake in spring, but mainly to the fact that he happened to strike a point at which the detritus from the shore extended further into the lake than any at which I dredged, for the bare mud of the central parts of the basin is evidently inimical to visible animal life. My observations in all other respects agree well with those of Barrois, except that the small Tubellarians which he found abundant under stones at the edge were, at the time I was at Tiberias, extremely scarce in that position, though common enough under stones in small saline springs in the neighbourhood.

The commonest and most conspicuous species in what may be called the marginal fauna are *Melanopsis costata* and *Theodoxis jordani* among the molluscs, the Polyzoon *Fredericella sultana jordanica*, the sponges *Ephydatia fluviatilis syriaca* and *Nudospongilla mappa*, the leech *Herpobdella lineata concolor*, the Oligochaete worm *Criodrilus lacuum*, the crab *Potamon potamios*, the Amphipods *Gammarus pungens* and *Orchestia platensis*, the Isopods *Asellus coxalis* and *Philoscia couchii*, and several indeterminate caddis-worms and Ephemerid larvae. Practically all the other aquatic insects found in the lake (with the exception of some Chironomid larvae, which occur at considerable depths) were also taken among stones at the edge.

The marginal fauna merges gradually into one that lives under stones just above the water-level, but does not object to an occasional wetting, indeed, the *Orchestia* and *Philoscia* are amphibious rather than truly aquatic. It is probable that insects of some species (particularly of Orthoptera) which in damp weather live entirely on dry land, come down in the dry season to the shores of the lake. I found under stones just above the water-line or even, so far as their lower edge was concerned, in contact with it, three species of earwigs which Dr. Malcolm Burr has been kind enough to identify as *Labia minor* (Linn.), *Labidura riparia* (Pallas) [2] and *Anisolabis maritima* (Bon.); the cricket *Acheta bimaculata* (De Geer); a small Tettigid grasshopper closely allied to the widely distributed Oriental species *Acrydium variegatum* Bol.[3]; the Saldid bug

[1] *Rév. biol. Nord. France* VI, pp. 250-293 (1894).

[2] This earwig occurs commonly in similar positions at the edge of the water in India.

[3] Hancock, *Rec. Ind. Mus.* XI, p. 135 (1915).

Erianotus lanosus, Duf.,[1] and at least one species of Carabid beetle and one of Thysanura. The spider *Oxyopes obtabilis*, Cambr., was as common at the margin in October as Barrois (*op. cit.*, p. 279) found it to be in May.

Most of the molluscs of the lake live at depths of between 2 and 20 metres and one (*Pyrgula barroisi*, Dautz.) has only been found, in a living condition, at still greater depths. Several species of "Entomostraca" are also found as a rule only near the bottom in the deeper parts of the lake, notably *Daphnia lumholtzi*, Sars, *Ectinosoma barroisi*, Rich. and *Laophonte mohammed*, Blanch. and Rich.

The fauna of the channel of the River Jordan as it passes through the lake apparently differs considerably from that of the main area, owing to the fact that the current is sufficiently strong to keep the bottom free of fine mud. The sponge *Cortispongila barroisi* has been found only in this channel, while the Polyzoon *Plumatella auricomis* has not been discovered anywhere else in this lake. Possibly the Gastropod *Pyrgula barroisi* is also confined to it, but I found only dead shells in that part of the channel I was able to explore.

Although some species are thus peculiar to or characteristic of certain areas, I do not think that it is possible to distribute the fauna of the lake into definite bathymetric zones. The reason why many of the molluscs are scarce or absent at the extreme margin possibly lies in the fact that shells of all kinds are eagerly collected by the people of Tiberias for sale to tourists, who naturally prefer the larger and more conspicuous forms; "dead" shells of *Melania tuberculata* that have lost their epidermis and have become completely white are particular favourites.

The plancton of the lake is always rather scarce and consists mainly of a few species of Cladocera, Copepoda and rotifers mingled with comparatively large quantities of microscopic algae. The most abundant Entomostraca are *Diaphanosoma brachyurum*, two species of *Ceriodaphnia*, *Bosmina longirostris* and *Cyclops leuckarti*—all common and widely distributed forms. By far the most abundant rotifer is *Branchionus patulus* or *militaris*.

In many of the small pools, separated from the lake or joined to it by narrow streams, and also in the River Jordan at the points at which it enters and leaves the lake, there is a much more abundant growth of aquatic weeds (consisting sometimes of algae and sometimes mainly of a species *Ranunculus*) than anywhere in the main body of water. Among

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1 *Acanthia variabilis* var. *connectens*, Horv., which inhabits the margin of the lake does not live under stones, but flies from stone to stone just as *Leptopus assuanensis* does at the edge of some Indian lakes.

these weeds the majority of the aquatic insects found in the Tiberias basin occur in considerable numbers. In aquatic thickets of the kind the little prawn *Atya phyra desmarestii* and several small fish of the genus *Cyprinodon* are also abundant. The former occasionally enters the lake, but it is probable that the latter do not do so. Neither prawns nor fish were found in water that was strongly saline or of a high natural temperature, though *Cyprinodon* occurs abundantly in salt springs near the Dead Sea As is often the case in the vicinity of lakes, microscopic life is much more abundant in small pools on or nea the shore than in the main body of water and this is also true of insect life, even where macroscopic vegetation is absent.

B. General Distribution.

The list of the fauna of the Tiberias basin printed on pp. 438–441 gives the names of all the named species of animals other than insects and Protozoa that have been found either in the lake, in small springs and pools in its immediate vicinity, or in the Jordan at the points at which it enters and leaves the lake.

I have omitted the insects for two reasons, firstly because they are very imperfectly known and secondly because several important papers on the entomology of Palestine and Syria are not accessible to me in Calcutta. The species of this group that have been identified from my own collection are discussed on pp. 451–453. The number of Protozoa recorded is so small, and the identifications are so doubtful, that it is not worth while to consider them at present.

No free-living Nematode has been recorded from the lake, but representatives of the group occur commonly in sponges and among algae. Several species of Oligochaeta not included in the list have been found only in an immature and therefore unidentifiable condition, and my collection of Hydrachnida has not been worked out.

Including insects and Protozoa, 170 species, subspecies and varieties of aquatic animals have been definitely recorded from the Tiberias basin and it is probable that when those groups which have been neglected have been fully investigated it will be found to consist of at least 300 species. The fauna, considering the comparatively small size of the basin (approximately 15 × 5 miles) and the fact that most of the water is distinctly brackish, is therefore by no means a poor one and affords excellent material for a discussion of the distribution of that of the Jordan valley, of which it forms a very important part.

The geographical range of the species can be discussed most conveniently group by group.

Porifera and Coelenterata.

Five species of sponges [1] have been found in the Lake of Tiberias :—

Subfamily *Spongillinae.*
Ephydatia fluviatilis syriaca; Topsent.
Subfamily *Potamolepidinae.*
Nudospongilla aster, Annandale.
,, *reversa*, Annandale.
,, *mappa*, Annandale.
Cortispongilla barroisi (Topsent).

All these sponges are endemic either in the Jordan system or in Syria and Palestine, while the genus *Cortispongilla* is known only from the lake.

The subfamily Spongillinae is found all over the world (except probably in Antarctic region) and includes, according to the system I have adopted, all the Spongillidae that produce well-developed and elaborate gemmules. The genus *Ephydatia* is also practically cosmopolitan, but is better represented in temperate climates than in tropical ones. *E. fluviatilis* occurs itself, or is represented by very closely related species in most regions, by *E. meyeni* in India and Sumatra, by *E. japonica* in Japan and North America (where the typical form also occurs), and by several races or allied species in Lake Baikal, Australia, etc. Forms that seem to be no more than local races occur in the Himalayas, in Siberia and in S. Africa as well as in Syria and Palestine, and the typical form, with several varieties, is widely distributed in the Holarctic Zone. Moreover, a closely allied species, *E. mülleri*, frequently occurs in the same localities as *E. fluviatilis* and it cannot be claimed that the two have always been satisfactorily differentiated. *E. mülleri* is of some importance in connection with the form that occurs in the Jordan system. In general terms it may be stated that, whereas *E. fluviatilis* has perfectly smooth skeleton-spicules, comparatively long gemmule-spicules and no bubble-cells in the parenchyma, the skeleton spicules of *E. mülleri* are granular or spiny except at the tips, its gemmule-spicules very short, and bubble-cells abundant in the parenchyma. But these distinctions do not hold if all the varieties, local races and allied species are examined, and it is extremely difficult if not impossible to say to which species some of the subordinate forms should be referred.

The race *syriaca* is more different from the typical *E. fluviatilis* than I realized when preparing my account of the specimens in my collection. In his original description Top-

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[1] Annandale. *Journ. As. Soc. Bengal* (n.s.) IX, pp. 57-88, pls. ii-v (1913).

sent noted the existence of a few spiny spicules among those of the skeleton. His specimens were from Lake Huleh and the R. Barada. I did not find any such spicules in sponges from the Lake of Tiberias and under ordinary powers of the microscope such as I usually employ in examining spicules of the kind, all the skeleton-spicules appeared to be perfectly smooth. Having had occasion recently, however, to re-examine my preparations under higher powers, I was surprised to find that in all cases these spiculas were very minutely granular except at the tips. I found also that whereas the highest powers available revealed no roughness in the skeleton-spicules of the typical *E. fluviatilis* from Europe, of the race *capensis*, of *E. japonica*, of the Australian *E. multiformis* and the Indian *E. meyeni*, the apparently smooth skeleton-spicules of *E. fluviatilis himalayensis* exactly resembled those of *E. fluviatilis syriaca.*

Topsent pointed out in describing the latter that it was just as distinct from the typical *E. fluviatilis* as several of the so-called allied species; my discovery confirms the opinion, but I still think that it should be regarded merely as a local race.

It may be claimed, in any case, that the form of *Ephydatia* found both in the Jordan system and the R. Barada, while closely allied to the common Holarctic species, is clearly differentiated from it and resembles the race found in the Himalayas in at least one important character.

I have dealt at length in my former paper on the sponges of the Lake of Tiberias with the subfamily Potamolepidinae, its component genera and their distribution. Here will it be sufficient to say that they appear to be forms that have lost their microscleres and simplified their gemmules in correlation with life in the still waters of lakes. The four representatives of this subfamily on our list are all, so far as we know, endemic as species in the Lake of Tiberias and its immediate vicinity, and this is also the case with the genus *Cortispongilla.*

The most interesting point, geographically, about the Potamolepidine sponges of the Lake of Tiberias is that they appear to represent a true lacustrine fauna and that their peculiarities would seem to indicate an origin in a larger body of still water than the existing lake, though not necessarily in one that persisted for a long period (see p. 469 *postea*).

The only species of Coelenterate found in the lake is identical with the common European *Hydra viridis*, a species of wide distribution in the Holarctic Zone, but not authoritatively recorded from any tropical locality.

Turbellaria.

The three species of this group found in the Lake of Tiberias all belong to the cosmopolitan genus *Planaria* and are

apparently endemic. Our present knowledge of the distribution of the species is too slight to render this fact of any importance.

Rotatoria.

Two papers that deal in part with representatives of this group from the Lake of Tiberias have been published, one by Barrois and von Daday.[1] the other by Rousselet.[2] The nomenclature adopted in these two papers differs considerably, and as I have no personal knowledge of the rotifers, I have in my list of the fauna adopted that given by Harring [3] in his recent synopsis of the Rotatoria.

None of the species found in the lake have any particular geographical interest. The rotifer-fauna, indeed, seems to be poor compared even with that of other lakes in Syria and Palestine, and all of the forms as yet recorded belong, according to Harring, to well known and widely distributed species

Annelida.

Only two species of leeches [4] are recorded with certainty. One of these represents a local race (*concolor*), common to the Jordan system and the R. Barada, of the widely distributed species *Herpobdella* (*Dina*) *lineata*; the other (*Placobdella catenigera*) is common in eastern Europe and western Asia.

Three Oligochaete worms [5] from the lake have been identified, all belonging to the Megadrilli ; several Tubificidae and Enchytraeidae are represented in my collection, but all are unfortunately immature and therefore indeterminate. Of the named species, one [*Helodrilus* (*Dendrobaena*) *lacustris*] is known only from the lake ; one [*H.* (*D.*) *byblicus*] only from Palestine and Syria ; while the third (*Criodrilus lacuum*) is common in southern and eastern Europe. An extraordinary extension of the range of the last species has recently been discovered by the finding of it in a lagoon on the east coast of Peninsular India.[6] The specimens as yet examined from that locality have, however, been immature, and until fully adult examples from India have been examined some doubt must be felt as to the specific identity.

It is thus clear that while the annelids of the Lake of Tiberias include a large proportion of forms endemic in Palestine and Syria and possibly some peculiar to the Jordan

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1 *Rév. biol. Nord France* VI, pp. 391-409 (1893-1894).

2 *Journ. As. Soc. Bengal* (n.s.) IX, p. 229 (1913).

3 *U. S. Nat. Mus. Bull.* 81 (1913).

4 Annandale, *Journ. As. Soc. Bengal* (n.s.) IX, pp. 211-214 (1913.)

5 Stephenson, *ibid.*, pp. 53-56, and Rosa, *Boll. Mus. Torino* VIII, no. 160, pp. 1–14 (1893).

6 Stephenson, *Rec. Ind. Mus.* X, p. 256 (1914) and *Mem. Ind. Mus.* V, p. 145 (1915).

system; they likewise manifest a distinct Palaearctic facies, although one species (*Criodrilus lacuum*) apparently ranges far into the Oriental Region.

Polyzoa.

Only two kinds of Polyzoa are[1] reported from the lake: *Fredericella sultana jordanica* and *Plumatella auricomis*. Both belong to cosmopolitan genera and both were only known until recently from the Jordan system. In a collection examined some months ago from the Volga system in the south of Russia both are represented—together with a species of *Plumatella* (*P. casmiana*, Oka) hitherto known only from Japan and with several common European forms of the genus.

The Polyzoa of the lake would, therefore, appear to possess eastern or central Palaearctic affinities.

Arachnida.

The only aquatic Arachnida as yet found in the Lake of Tiberias are water-mites (Hydrachnida). My own small collection of this group is still in the hands of Mr. J. N. Halbert, who has as yet been unable to find time to prepare a report upon them.

Koenike[2] has recorded two species from the Lake of Tiberias, namely *Atax crassipes*, O. F. Müllar and *Hygrobates longipalpis*, Hermann. Both these species are apparently of wide distribution, but I am unacquainted with the literature of the group and am unable to give precise details.

Crustacea.

The "Entomostraca" are represented in the Tiberias basin by a considerable number of species; but most of these are widely distributed forms of no particular geographical interest; a few are apparently endemic, but species of the groups included under this heading are liable for biological reasons to be found occasionally in widely separated localities, and their occurrence often appears, in the present state of our knowledge, to be sporadic. The plancton of the lake, as I have already pointed out, is never very abundant and consists for the most part of a relatively large number of individuals of a few common and practically cosmopolitan species of Copepoda[3] and Cladocera,[4] none of which are particularly noteworthy.

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[1] Annandale, *Journ. As. Soc. Bengal* (n.s.) IX, pp. 223-228, pl. vii. figs. 1, 1*a*, 1*b*, 1c, 2 (1913).

[2] *Rév. biol. Nord France* VII, pp. 139-147 (1895).

[3] Richard, *Rév. biol. Nord France* V, pp. 400-405, 433-443, 458-475 (1893), and Gurney, *Journ. As. Soc. Bengal* (n.s.) IX, pp. 231-232 (1913).

[4] Richard, *Rév. biol. Nord France* VI, pp. 360-378 (1894), and Gurney, *Journ. As. Soc. Bengal. loc. cit.*

The Ostracoda seem to be poorly represented, the only form of which I can find a definite record being *Limnicythere tiberiadis*, Moniez, which is apparently endemic.

Among the Copepoda *Laophonte mohammed*, Blanchard and Richard,[1] has some interest in that it was originally described from a salt lake in Algeria and belongs to a genus mainly marine, as does also *Ectinosoma barroisi*, Richard, an apparently endemic species.

No "Phyllopod"[2] has yet been found living in the Tiberias basin, but a species of Conchostraca was reared in Calcutta from mud which I brought from a small pool at the edge of the lake close to the mouth of the Wad-es-Semakh. This little crustacean has recently been described by von Daday[3] under the name *Caenestheriella* (=*Estheria* of authors in part) *educta*. He regards it as allied to *C. variabilis*, Dad., a species described from Hungary in the same paper, in which the following species are also described from Palestine:—*Caenestheria syriaca*, sp. nov. (p. 62, fig. 4) from Damascus, Jaffa and Jerusalem (also reared in Calcutta from mud brought from the pool Birket Meskana between Tiberias and Nazareth) and *C. inopinata*, sp. nov. (p. 69, fig. 6) from Jerusalem. Only a part of the paper is yet published.

Three species of aquatic or amphibious Amphipoda have been found in the Tiberias basin,[4] namely *Gammarus pungens*, M.-Edw., *G. syriacus*, Chevr. and *Orchestia platensis*, Kröyer.

The first of these is common in the countries round the east end of the Mediterranean, while the allied form *G. syriacus* is endemic in Syria and the northern parts of Palestine proper. The latter species, though abundant among filamentous algae at the edge of the R. Barada at Damascus, is very scarce in the Tiberias basin; I found only a single pair, swimming together in a small spring of pure fresh water at Ain-et-Tineh. Possibly it avoids water that is at all saline. *A. pungens*, on the other hand, though a true freshwater form, is abundant at the edge of the lake.

Orchestia platensis, which is of more amphibious habits than either species of *Gammarus*, is also abundant at the edge of the lake. It is a widely distributed species and occurs on both sides of the Atlantic as well as round the Mediterranean.

The Isopods[5] *Asellus coxalis*, Dollfuss, *Philoscia couchii*, Kinahan and a species of *Leptotrichus* (probably either *L. tauricus*, B.-L. or *L. pulchellus* Dollfuss) occur in abundance

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[1] Blanchard and Richard, *Mém. Soc. zool. France* 1891, p. 15, pl. vi. figs. 1-15.

[2] For an account of the "Phyllopods" of Syria see Barrois, *Rév. biol. Nord France* V, pp. 24-39 (1893).

[3] *Ann. Sci. nat.* (Zool.) XX, p. 127, fig. 23 (p. 128) (1915).

[4] Tattersall, *Journ. As. Soc. Bengal* (n.s.) X, pp. 361-363 (1914).

[5] Tattersall, *op. cit.*, pp. 363-367, figs. 1-7.

under stones at the edge of the lake and in small pools in its vicinity. The first is the only exclusively aquatic representative of the group, the other two being amphibious species and belonging to genera that also include terrestrial forms. *A. coxalis* is apparently endemic in Syria and Palestine, resembling *Gammarus syriacus* in its distribution, but is closely allied to the common European *A. aquaticus* (Linn.). Of the two amphibious species one (*P. couchii*) is remarkable as being the only definitely maritime animal as yet recorded from the Jordan system. If Tattersall's views (*op. cit.*, p. 366) as to its synonomy are accepted, it occurs all round the Mediterranean and also on the European shores of the Atlantic as far north as the south of England and the west of Ireland.

The Amphipoda and Isopoda of the Tiberias basin may, therefore, be said to be essentially Palaearctic (in one case Holartic) species; several forms have become sufficiently differentiated in Syria or Palestine to be accepted as endemic.

The Decapoda, which have been discussed by Barrois [1] and by Mr. Kemp and myself,[2] are represented in the Tiberias basin by three species, *Atyaëphyra desmarestii* (Millet), *Typhlocaris galilea*, Calman, and *Potamon potamios* (Olivier).

The first of these is a member of the primitive but essentially fluviatile and lacustrine family Atyidae and is the only species of the family (with the exception of one or two intrusive forms of *Caridina* found in Egypt and western Asia) that occurs in the Palaearctic Region. It is found in all the countries that surround the Mediterranean except in Egypt, where it is replaced by an extremely vigorous intrusive species, *Caridina nilotica* (Roux). This species is probably of Ethiopian origin. The Syrian race of the *Atyaëphyra* is said to be distinct in certain particulars from that found both in southern Europe and North Africa.

The monotypic genus *Typhlocaris* is remarkably isolated both structurally and geographically, possessing certain anatomical features that justify its acceptance as the type and sole representative of a subfamily (Typhlocaridinae) of the family Palaemonidae, and occurring only, so far as we know, in the little artificially-walled pool Birket 'Ali-ed-Dhaher on the shores of the Lake of Tiberias. The degenerate structure of its eye-stalks [3] and its white colour suggest that it was originally an inhabitant of the waters under the earth; its occurrence in Birket 'Ali-ed-Dhaher may possibly be due to earth-movements that have ejected it and shut it off from its former home.

Potamon potamios, one of the few freshwater crabs known

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[1] *Rec. biol. Nord France* V, p. 125 (1892).

[2] *Journ. As. Soc. Bengal* (n.s.) IX, p. 241 (1913).

[3] See Ekendranath Ghosh, *Journ. As. Soc. Bengal* (n.s.) IX, p. 236, pl. xvi, figs. 16, 17 (1913).

from the Palaearctic Region, occurs in Lower Egypt, in the Jordan valley and in the island of Cyprus. In Syria proper it is replaced by the closely allied form *P. fluviatile* var. *ibericum* (Marsch. Bieb.). The species is thus in all probability of Nilotic origin, but it is possible that its migrations may have taken place in the opposite direction and that it may have originated in Cyprus or in the Jordan and made its way southwards to Egypt.

Considered as a whole, the Crustacea of the Lake of Tiberias have a distinctly Palaearctic character. Several species and one genus (*Typhlocaris*) are endemic in the Jordan system, but none of the former are at all strongly differentlated and the peculiarities of *Typhlocaris* are clearly correlated not with geographical but with environmental isolation.

Insecta.

I have omitted from my list of the fauna the names of the aquatic or semi-aquatic insects that have been recorded from the Lake of Tiberias, for two reasons—firstly because the insect-fauna of the Jordan valley is still very imperfectly known, and secondly because several important papers bearing directly or indirectly on the entomology of Palestine are inaccessible in Calcutta.

The following named species are represented in my collection,[1] which also includes at least two species of Ephemeridae that have not yet been named:—

COLLEMBOLA (see Carpenter, *Journ. As. Soc. Bengal* (n.s.) IX, pp. 215-217 : 1913).

Cyphoderus genneserae, * Carpenter.

ODONATA (see Laidlaw, *tom. cit.*, pp. 219-220).

Trithemis annulata (Pal. de Beauv.) and *Brachythemis leucosticta*, Burm.

DIPTERA (see Brunetti, *tom. cit.*, pp. 43-45 ; Edwards, *tom. cit.*, pp. 47-51 ; Keiffer, Vol. X (1914), pp. 369-372.

Psychodidae ..	*Phelebotomus minutus*, Rond. and *Ph. papatasi* (Scop.).
Chironomidae ..	*Pelopia cygnus*, Keif., *P. monilis* (Linn.), *Trichotanypus tiberiadis** Keif., *Polypedilum genesareth,** Keif., *P. tiberiadi,** Keif., *Tendipes* (*Chironomus*) *galilaeus** Keif.
Tipulidae ..	*Geranomyia annandalei,** Edwards, *Conosia irrorata* (*Wied.*).

[1] This collection was made at the time of year, the end of the dry season, most unfavourable for entomological work.

Culicidae .. *Anopheles palestiniensis* (Theob.), *A. culicifacies*, Giles, *Stegomyia fasciata* (Fabr.), *Culex modestus*, Fic., *C. pipiens*, Linn., *C. laticinctus*, Edwards, *Uranotaenia unguiculata*,* Edwards.

HEMIPTERA (see Horváth, *Journ. As. Soc. Bengal* (*n. s.*) IX, pp. 477-480 : 1913).

Hebridae. .. *Hebrus pusillus*, Fall.

Hydrometridae .. *Mesovelia vittigera*, Horv., *Dipsocoris alienus*, H. Sch., *Hydrometra stagnorum* (Linn.), *Gerris paludum* (Fabr.), *Limnogonus aegyptiacus*, Put., *Naboandelus bergevini*, Berg., *Rhagovelia nigricans*, Burm., *Microvelia pygmaea*, Duf.

Saldidae .. *Patapius spinosus*, Rossi, var. *nigriceps*, Horv., *Erianotus lanosus*, Duf., *Acanthia variabilis*, H. Sch., var. *connectens*, Horv.

Ochteridae .. *Ochterus strigicollis*,* Horv.[1]

Nepidae .. *Ranatra vicina*, Sign.

Notonectidae .. *Plea letourneuxi*, Sign., *Anisops producta*, Fieb., *Notonecta glauca* (Linn.).

Corixidae .. *Arctocorisa hieroglyphica*, Duf., *Micronecta annandalei*,* Horv., *M. isis*, Horv., *M. perparva*,* Horv.

The Collembole is interesting on account of its relationship to Sudanese forms and of its occurrence at the edge of a spring of saline water.

The Odonata appear to have Palaeotropical affinities, but only two species are yet known from the lake, though many others occur.

The Diptera are all Nematocera. The two Psychodidae are both essentially Mediterranean forms, but *Phlebotomus papatasi* penetrates into the Oriental Region as far as the plains of Bihar and the hills of the Bombay Presidency, while *P. minutus* is a common insect all over the plains of India and probably in other parts of the Oriental Region; it is represented in Africa by a very closely allied form.[2] *Conosia irrorata*[3]

[1] In Horváth's paper on my collection of aquatic Hemiptera (*op. cit.*, p. 479) the figures of this species and of *O. marginatus*, Latr., have unfortunately been transposed. Fig. 1 refers to the latter species, fig. 2 to *O. strigicollis*.

[2] *P. minutus* var. *africanus*, Newstead, *Bull. Ent. Res.* III, p. 363 (1912).

[3] Brunetti, *Faun. Brit. Ind., Dipt. Nemat.*, p. 497 (1912).

among the Tipulids is an essentially Oriental species, but ranges as far north-east as Japan and as far south-east as Australia. It has not been found in Africa. Among the Culicidae *Anopheles palestiniensis* is found in N.W. India, while *A. culicifacies* is widely distributed in India and the neighbouring countries; in Africa the closely allied *A. funestus* apparently replaces it. *Uranotaenia* is a Palaeotropical genus, but the Tiberiad species is well distinguished from either Oriental or Ethiopian forms. *Culex modestus* is eastern European, *C. laticinctus* essentially Mediterranean and *C. pipiens* Palaearctic.

Several of the Hemiptera are probably of Egyptian, if not Ethiopian origin, viz. *Limnogonus aegyptiacus*, *Naboandelus bergevini*, *Plea letourneuxi* and *Micronecta isis*, while *Rhagovelia nigricans* is a widely distributed Palaeotropical species not known in the Palaearctic Region except in Syria, Palestine and Egypt.

I have said nothing of the water-beetles. My own collection was very small and has been worked out in part only. D'Orchymont[1] has, however, published some notes on the Hydrophilidae and has identified the following species:—*Enochrus* (*Methydrus*) *nitidulus*, Kuw, *Laccobius revelieri*, Perris, var. *leucaspis*, Kiesw., *L. gracilis*, Mots., *L. syriacus*, Guilleb. The first of these identifications he regards as a little doubtful; he has also identified generically a species of *Enochrus* and one of *Laccobius* (*s. str.*).

Considered as a whole, therefore, the insect fauna of the Lake of Tiberias, so far as it is known to me, appears to consist of several distinct elements, namely an eastern European element, an Egyptian element, and one of Palaeotropical origin that seems on the whole to be Oriental rather than Ethiopian. It must be remembered, however, in considering this last element that the insects are not strictly comparable to any other group discussed in this paper, for no insect is an exclusively aquatic animal, and that most of those included in my collection have well-developed powers of flight at one stage in their life-history.

Mollusca.

The Mollusca afford peculiarly valuable evidence in the study of the distribution of any local fauna, in that they have as a rule received more attention from naturalists than any other group of invertebrates and are therefore better known from a geographical point of view,—indeed, sometimes from a geological one also. It is unfortunate that knowledge of the kind is often superficial, being confined to the shells and not applying to the anatomy of the animal. So far as I am aware,

[1] *Journ. As. Soc. Bengal* (n.s.) X, pp. 357-360 (1914).

the study of the shells of the Lake of Tiberias, which has been undertaken by several conchologists and is summarized in Mr. Preston's "Faunal List" (*Journ. As Soc. Bengal* (n.s.) IX, pp. 456 to 475: 1913). has not been confirmed in any case by anatomical research. The fact is, however, of less importance in this case than in some others, because the species all belong to well-known genera of which they are fairly typical representatives. I propose, therefore, to discuss the Mollusca of the lake family by family, after making a few general remarks on their common peculiarities.

The most striking feature of the Molluscan fauna is, as Mr. Preston has pointed out (*op. cit.*, p. 465), the prevalence of thick-shelled, and the almost complete absence of thin-shelled species. It should be noted also that certain Gastropod genera common in lakes in similar latitudes (e.g. *Limnaea*, *Planorbis*, *Vivipara* and *Ancylus*) are either not represented at all or else extremely scarce actually in the lake, though they occur in abundance in its vicinity. The two facts are probably correlated, but it is possible that thin-shelled non-operculate species such as *Limnaea auricularia*, *L. virginea* and *Physa tiberiadensis*, which are common enough in the Jordan within a few hundred yards of the shores of the lake, find it difficult to live in its waters. Mr. Preston regards the thickness of the shells of the Mollusca that do so as being "probably due to a surfeit of suspended mineral matter in the water of the Lake." I am not quite sure what this means, but it seems to me improbable that the thickness of the shells is due to any preponderance of calcareous salts. Analyses do not show any great amount of free calcium in the water, and if they did it would not necessarily be utilized by the molluscs, most of which live also in water of more normal composition. There is no evidence in the case of widely distributed species that the shells of individuals from the lake are thicker than those from other localities. My own view is that there is something in the chemical composition of the water that causes it to be destructive to the organic matter of the shell, and that therefore thin shells which contain a large proportion of organic matter are rapidly destroyed and their occupants killed. This view is supported by the fact, originally noted by Lortet[1] and confirmed by my own observations, that dead shells are rapidly disintegrated in the lake, not by erosion of the surface but by a crumbling away of the whole substance. This is particularly noteworthy in the case of the Unionidae. Dead shells are frequently dredged up that have retained their natural form in

[1] *Arch. Mus. d'Hist. nat. Lyon* III, p. 108 (1883). Lortet refers mainly to dead shells found at great depths, but notes the same phenomenon in those from shallow water. I do not think that depth has anything to do with it.

every respect, but crumble into a white powder as soon as they are removed from water.

For the statements as to the geographical and geological distribution of genera given in the following notes, I am indebted mainly in the first instance to Fischer's valuable *Manuel de Conchyliologie et de Paléontogie Conchyliologique* (Paris: 1887).

LIMNAEIDAE.

Limnaea auricularia, Linn. and *L. virginea*, Preston represent this family in the fauna of the lake-basin, but specimens of the former species were taken only in the Jordan a few hundred yards above its entry. The species is essentially a Palaearctic one, not otherwise known from Syria or Palestine, but common in Great Britain and other northern countries including Siberia. *L. virginea* is only known from the Jordan channel in the southern part of the lake, in which it is the only non-operculate Gastropod as yet found, and from a small stream in the Wad-es-Semakh near the eastern shore.

PHYSIDAE.

The only representative of this family in Mr. Preston's list is *Physa tiberiadensis*, a new species found with *Limnaea auricularia* in the Jordan and therefere not actually belonging to the lake-fauna. Both *Physa* and *Limnaea* are cosmopolitan genera.

MELANIIDAE.

Individuals of two genera are common in the lake, namely *Melania* and *Melanopsis*.

The former is mainly a tropical genus, abundantly represented in the Ethiopian and Oriental Regions and occurring also in tropical America. Its claim to be regarded as Palaearctic is founded on a few intrusive species. As a genus it makes its appearance in Cretaceous deposits and is well represented in the Tertiary; Jurassic species assigned to it are, according to Fischer, of doubtful position.

Melanopsis, on the other hand, occurs most abundantly as a recent genus in the countries bordering on or adjacent to the southern, eastern and Iberian shores of the Mediterranean, but it is found also in New Caledonia and New Zealand. As it is widely distributed in the Tertiary of Europe and occurs also in that of America, it may be regarded as of Holarctic, probably Palaearctic origin. It dates from the Crag. Two sections of the genus are found in the Lake of Tiberias, viz. *Melanopsis* (*s. s.*) and *Canthodomus*, Swainson.

Melania is probably represented by a single species, *M. tuberculata*, Müller, of which *M. rothiana*, Mousson, appears to be a synonym, if it is not identical with the variety *elongata* of Locard. The typical form of the species has perhaps a

wider range than any other member of the genus, distributed as it is over the greater part of northern and eastern Africa and practically the whole Oriental Region; there are specimens from Malta in the Indian Museum. The variety *elongata* was described from the Lake of Tiberias, in which it exists side by side with the typical form and probably originated.

The species is of considerable interest from a geographical point of view as one instance among many of an unusually adaptable species having an unusually wide range. In India it is one of our commonest freshwater molluscs, at any rate in coastal and deltaic districts, and is equally at home in fresh and in brackish water. I point out elsewhere in this paper (p. 466, *postea*) the difference in its habits here and in Galilee. Tristram notes that the shell is extremely common in a subfossil condition near the Dead Sea and elsewhere in Palestine.

Melanopsis is represented in the lake by two (or possibly three) species. Of these *M.* (*Canthodomus*) *costata*, Oliv., is by far the most abundant. It is one of those forms which, having a wide general distribution, are extremely plastic and liable to produce well-defined varieties of a more or less local nature. These, nevertheless, live in their several localities, sometimes side by side with, sometimes in a slightly different environment from the typical form, without ousting it completely. In the Lake of Tiberias the shell exhibits great individual variation in colour and size, both depending to some extent on the growth of algae on its surface; while at one particular spot, close to the exit of the Jordan, some individuals are sufficiently far removed from the normal to be recognised as a distinct variety (*degenerata*, Preston). The variety *jordanica*, Roth, on the other hand, is probably a fluviatile phase that occasionally strays into the lake. According to Tristram it differs in habits from the typical form in that it adheres only to rocks and stones, whereas the other is found on water-plants. My own experience, however, does not bear this out, as I found what Mr. Preston regards as the typical form of the species commonly adherent to the lower surface of stones. There is probably, moreover, a complete transition between the two varieties. The present range of the species as a whole is practically coextensive, so far as the Mediterranean countries are concerned, with that of the genus, for it is found not only in N. Africa and south-western Asia but also in Spain.

There has been confusion about the two other species (*M. praerosa*, Linn., and *M. buccinoidea*, Oliv.) said to occur in the Lake of Tiberias. All the smooth shells of the genus I obtained are assigned by Mr. Preston, who retains both names, to the former species, but Locard states that Lortet found *M. buccinoidea* abundant on the shores of the Lake of Tiberias, and Tristram, remarking on the variability of the species, says

that the local race of the lake is the same as that of Lake Huleh. In any case both species are stated by some authorities to be widely distributed in Syria, and *M. praerosa* at any rate, although it is found in certain parts of the lake not uncommonly, is a fluviatile rather than limnic species. Dautzenberg regards the two forms as synonymous, and this view is probably correct. The distribution of *M. praerosa* (*s. l.*) is mainly North African.

Considering the local representatives of the Melaniidae as a whole we may therefore say that the following faunistic elements can be distinguished among them:—(*a*) a tropical element, represented by *Melania tuberculata*, (*b*) a Mediterranean element, represented by *Melanopsis costata*, and by *M. praerosa* or by *M. buccinoidea*—if the two latter are distinct.

HYDROBIIDAE.

Among the Gastropods the Hydrobiidae are the dominant family in the lake, if by this term we mean the one represented by most species. As regards the number of individuals, however, the Melaniidae and the Neritidae are better represented, for individuals of *Melanopsis costata* and *Theodoxis jordani* together outnumber those of all other species. In Mr. Preston's list the Hydrobiidae are represented by three genera and nine species: all the species are small and scarce, or at any rate by no means abundant. The three genera are *Pyrgula*, *Bithinia* and *Bithinella*.

Pyrgula is a small genus found mainly in south-eastern Europe and in particular in the countries around the Adriatic. It occurs in upper Tertiary deposits in the same countries and in those of the Levant.

Bithinia lives practically all over the old world and is first found in Tertiary deposits.

The recent distribution of *Bithinella* is more restricted and its origin probably more recent: some species occur in brackish water.

A single species of *Pyrgula* (*P. barroisi*, Dtz.) is recorded from the lake. It is probably endemic there and is only found living in rather deep water. My own collection contains many dead shells probably washed from their proper habitat by the current of the Jordan as it passes through the lake.

Bithinia is represented by three species, all of which are apparently endemic in Syria and Palestine, while two have been found only in the lake itself and its immediate vicinity. The species are *B. badiella*, Parr., which has been taken in the Lake of Homs, at Damascus and elsewhere in Syria, *B. gennesaretensis*, and *B. semakhensis*, Preston, both apparently endemic in the lower parts of Gallilee.

Bithinella has five Tiberiad species, that is to say more than any other Gastropod genus. Only one of them (*Bithinella*

contempta, Dtz.) has been found beyond the immediate vicinity of the lake ; it is, so far as we know, endemic in Palestine and Syria. Of the remaining four, three (*B. syngenes*, *B. galilaeae* and *B. vexillum*, Preston) are only known from small pools or streams on the shores, while the fourth (*B. annandalei*, Preston) has been found both in a small pool and at the edge of the lake.

Considered as a whole, the representatives of the family Hydrobiidae that occur in the Lake of Tiberias are apparently remarkable for the large proportion of strictly endemic forms included among them; for all these forms are small and obscure and may very easily have been overlooked in other localities. A prolific evolution of species seems to be characteristic of the family. Neither the species nor the genera of the Lake of Tiberias provide any clear indication of the origin of the fauna, but both may be said to have a Palaearctic facies and neither would by themselves necessarily indicate tropical affinities.

Valvatidae.

This family, which consists entirely of small, obscure species, is represented by a single form, *Valvata saulcye*, Brgt., which has also been taken at several localities in Syria. *Valvata* is widely distributed in the Northern Hemisphere and a common European species is said to occur in Kashmir.[1] Fischer recognises only one genus (*Valvata*, Müller), which first appears in the Purbeck beds.

Neritidae.

The Neritidae are represented in the Jordan system by several species of the genus or subgenus *Theodoxis*, Montfort, which is mainly fluviatile. Some authorities do not recognise it as distinct from *Neritina*, Lamark, and Fischer classifies it as a section of that genus. *Neritina* is mainly tropical and occurs abundantly in Oceania, but species are also found, including representatives of *Theodoxis*, in northern Europe.

Only two species occur in the local fauna, *Th. jordani* (Sow.) and *Th. bellardi* (Mouss.); for it is clear from Preston's remarks on the existence of intermediate specimens that *Th. michoni* must be regarded as a mere variety of the former.

Th. jordani is one of the most abundant molluscs in the lake and is found commonly in Syria and in Palestine north of Tiberias; while the variety *michoni*, according to Tristram, is "abundant in almost every stream and spring throughout the whole of Palestine, east and west." It is probably an

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[1] Preston, *Faun. Brit. Ind. Freshwater Mollusca*, p. 95 (1915): Valvata ? *microscopica*, Nevill, from the delta of the Ganges does not belong to this family, but apparently to the Cyclostrematidae. See the report by Annandale and Kemp on the Mollusca of the Chilka Lake (*Mem. Ind. Mus.* V, *ined.*).

essentially fluviatile form. *T. bellardi* has been taken both in Coele-Syria (the B'ka) and in the lake, but it is not represented in my collection. Tristram thinks that it is the species found in the R. Jabbok.

UNIONIDAE.

There is probably no family of molluscs in which the shell is more liable to slight changes in size, shape, texture and colour, in correlation with environment, than the Unionidae, and consequently an enormous number of species have been described, many of which are mere phases or aberrations. In Preston's "Faunal List" no less than seventeen names of nominal species of *Unio* occur. According to the synonomy of Simpson's[1] "Synopsis of the Naiades" these may be reduced to nine or ten, but it does not appear that the latter author was personally acquainted with the Jordan forms. In my own collection seven nominal species are represented. They are *U. pietri*, *U. tristrami*, *U. terminalis*, *U. prosacrus*, *U. simonis*, *U. galilaei* and *U. chinnerethensis*, the last being a new species represented by many specimens.

These "species", to an observer who is not a professed conchologist, seem to fall into three groups, or at any rate into two groups and one sub-group as follows :—*U. pietri*, *U. tristrami*, *U. terminalis*, and *U. prosacrus* into one group, with *U. chinnerethensis* clearly distinct but not far removed from them; and *U. simonis* and *U. galilaei* markedly distinguished by their much thicker and more nearly circular shells. Of the species of the first group I can clearly distinguish *U. prosacrus* from the others by a definite though not very great difference in shape of the shell; the others, except Preston's new species, seem to me to be identical.

According to Simpson, *U. tiberiadensis*, *U. tristrami*, *U. prosacrus* and *U. lorteti* are synonymous with *U. pietri*, while *U. simonis* and *U. galilaei* are synonomous with *U. semitrugatus*, Lamarck, a form described from Asia Minor. Tristram,[2] moreover, does not regard *U. terminalis* as specifically distinct from either *U. jordanicus* or Lea's *U. dignatus* from the Tigris. Further, Simpson himself points out that Lea and Férussac were of the opinion, after examining Lamarck's specimens, that *U. semirugatus* was not distinct from *U. littoralis* of the same author, a circum-Mediterranean species with which Simpson regards *U. requieni*, Mich. (a widely distributed form said to have been found in the lake) as synonymous.

It is useless to follow the synonomy of the nominal species of Unionidae further, but interesting results become apparent

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[1] *Proc. U. S. Nat. Mus.* (22), pp. 501-1044 (1900).

[2] *Fauna W. Palestine*, p. 201 (1888).

if we turn our attention from these so-called species to the larger groups they represent. There is no doubt, if we accept Simpson's classification (which appears to be the most complete at present worked out), that the Unionidae of the Lake of Tiberias all belong to the genus *Unio*, Retzius (*s. str.*) and to the section or subgenus *Lymnium*, Oken. They represent, moreover, two groups in that section, the majority belonging to what Simpson calls the "Group of *Unio pictorium*," while *U. galilaei*, *U. rothi* and *U. simonis* belong to his "Group of *U. littoralis*."

Now *Unio* as a genus is mainly but not exclusively Holarctic, while *Lymnium* is exclusively so, except for a few intrusive species that inhabit the debatable territory between the Nearctic and the Neotropical Regions. Both the two groups to which the Galilaean species belong are confined to the Palaearctic Region, but several of the allies of *U. littoralis* inhabit south-western Asia. It is to these Asiatic forms that *U. simonis* and *U. galilaei* are most closely related, whereas *U. terminalis* and the other nominal species related to or specifically identical with it exhibit both circum-Mediterranean and western Asiatic relationships.

The absence of such tropical genera as *Nodularia* and *Parreysia* is a noteworthy feature of the molluscan fauna of the Jordan system, and the fact that *Unio* (*s. str.*) is not found in the Nile must be noted in the same connection.

Taking all these facts into consideration, we may fairly state definitely that the Unionidae of the Lake of Tiberias represent a Palaearctic element in its fauna, derived probably both from the countries round the Mediterranean and from Mesopotamia or the interior of Asia Minor. They have no African affinities. The family is better represented in the Jordan system in species, and perhaps also in individuals, than any other family of molluscs; in the Lake of Tiberias the latter are particularly abundant.

CYRENIDAE.

This universally distributed family is represented in the lake by several species of *Corbicula*, a genus widely distributed in Africa, Asia, America and Australia.

The best-known of these species is *Corbicula fluminalis* (Müller) which has a wide, mainly Paleotropical range resembling that of *Melania tuberculata*, but even more extensive in tropical Africa.

The other forms, *C. cor*, Lk., *C. crassula*, Mouss. (possibly no more than a variety of *C. cor.*), *C. syriacus*, Brgt., and *C. feliciani*, Brgt., are all Syrian, occurring beyond the limits of the Jordan system, but not outside Palestine and Syria. They are all, moreover, northern forms not known south of the Lake of Tiberias.

Two elements are thus represented by the Cyrinidae, (*a*) an endemic Syrian element and (*b*) a tropical one common to Africa and the Oriental Region.

Considering the molluscs of the Lake of Tiberias as a whole, we find, therefore, that the fauna is a composite one, mainly Palaearctic and including a large proportion of endemic Syrian species, but also containing a tropical element. No representative of this tropical element is exclusively African, and, considered by itself, it would appear to be just as much Oriental as Ethiopian.

There is no genus or subgenus of molluscs endemic in the Jordan system. The molluscan fauna of the Lake of Tiberias agrees well with that of other parts of the system, and more particularly with that of the northern section thereof, but it also includes a number of strictly local species, none of which are of a highly specialized nature.

Craniata.

I have already dealt with the present distribution of the aquatic vertebrates of the Lake of Tiberias in my paper on the Fishes, Batrachia and Reptiles (*Journ. As. Soc. Bengal* (n.s). IX, pp. 31-41: 1913), and have nothing to add except to state that I was probably wrong in placing *Tilapia magdalenae* in the genus *Paratilapia*. Boulenger, however, is of the opinion that *Hemichromis sacra*, Günther, should be placed in that genus. I bow to his greatly superior knowledge.

III. ORIGIN OF THE FAUNA OF THE JORDAN SYSTEM.

The most remarkable point in the distribution of the aquatic animals of the Jordan system is the fact that whereas there is unmistakable Ethiopian element among the fishes, no such element can be detected with certainty among the invertebrates. This apparent anomaly can be discussed only in the light of the geological history of Palestine and the neighbouring countries.

The origin of the river Jordan has been considered by several highly competent geographers, especially by Hull,[1] Suess,[2] and Gregory.[3] The last author has codified and applied existing knowledge on the subject in a particularly clear and interesting manner, and there seems to be no

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[1] *Memoir on the Geology and Geography of Arabia Petraea, Palestine,* etc., 1889. On the Physical Conditions of the Mediterranean Basin, *Trans. Vict. Instit.*, 1895.

[2] *The Face of the Earth*, Eng. Ed. II, pl. III, chap. IX, 1906.

[3] *The Great Rift Valley*, Chap. XIII, 1896.

doubt that his views are substantially correct. These views may be summarized as follows :—

In Pliocene times the present valley of the Jordan was filled with water, which in the neighbourhood of the existing Lake of Tiberias must have reached a level at least 600 feet above the present one. A lake of great depth and covering a considerable area was thus formed. It is called by Suess the "Jordan Lake." From the south end of this lake a river named by Gregory the "Erythaean River" flowed across the isthmus that now joins Sinai to the mainland of Asia, and down the valley of the Red Sea, which was then dry land, to reach the Indian Ocean somewhere in the neighbourhood of Aden. The Nile had no connection with the Erythraean River, but an important tributary joined it from the region of the great lakes of Central Africa. (At this period the eastern shore of the Mediterranean extended across from what is now the Egyptian coast to the prominent part of Asia Minor, including the present island of Cyprus, and a river probably flowed down from the tract of country now submerged through the Gap of Esdraelon into the Jordan Lake).

Owing to earth-movements and climatic changes that took place at a slightly later period, and in particular to the shrinkage of the Lebanon glaciers and to the raising of the ridge called El-Saté to the south of the Dead Sea, the Jordan system was completely cut off from the Erythraean valley (into which the waters of the Indian Ocean then penetrated), and therefore from all connection with the African systems. At the same time, or possibly a little earlier, the watershed was much restricted in Palestine. The level of the greater part of the Jordan system was thus greatly lowered, so that the old lake was represented henceforth merely by the river with its three comparatively small basins, the waters of Merom (Lake Huleh), the Sea of Galilee (the Lake of Tiberias) and the Dead Sea.

There is no real evidence, either geological or zoological, that any part of the existing system was ever connected directly with the Mediterranean.

It has been generally assumed that the Jordan Lake remained fresh or practically fresh throughout the course of its existence and that the Dead Sea and to a less extent the Lake of Tiberias are now salter than they ever have been hitherto. It seems to me, however, unnecessary to make this assumption in the case of the Lake of Tiberias, and I believe that there is some biological evidence to suggest that its waters have varied in salinity from time to time, and that they are now less salt than they were at some previous date. It is not difficult to see that the outflow, which can never have been excessive since the lake shrank to its present dimensions, may very easily have been temporarily

cut off from the Jordan valley in much the same manner as that of the Dead Sea was permanently cut off from the Erythraean valley.

It is well known that the waters of the Dead Sea met their biological doom not by becoming salt but by becoming poisonous. As Dr. Christie[1] has pointed out in a previous paper in this series, the Lake of Tiberias derives its salts largely from deposits in the surrounding country. These deposits do not contain any large proportion of poisonous minerals. The same is the case with the Dead Sea so far as the origin of its salinity is concerned, but the soluble minerals of the vicinity are poisonous, the essential difference being that whereas the salts of the Tiberias district are mainly salts of sodium, those of the Dead Sea district are largely salts of magnesium. Had the latter been innocuous, the great increase in the specific gravity of the water that took place after the outflow disappeared would have killed off a large proportion of the fauna, but would not have rendered the lake absolutely sterile. The fauna would have been comparable to, even if poorer than, that of the Lake of Tiberias. Tristram[2] has noted, that certain fish live and flourish in springs near the Dead Sea in water that is salter than that of the lake, and that these fish die in a short time if transferred to Dead Sea water.

The only way in which I can explain the fact that the conspicuous African element in the fauna of such a lake as that of Tiberias is practically confined to one group of animals, is by the suggestion that conditions have changed to such an extent since the connection with the African rivers was cut off that most of the Ethiopian forms have perished and that those forms which have survived have proved less susceptible than others to the changes that have occurred.

At first sight it seems remarkable that the African element should consist of vertebrates rather than invertebrates, for it is a general rule that more highly organized animals are more susceptible to changes in environment than those less highly specialized. The African fish, however, that live in the Jordan and its lakes—some of them have penetrated as far north as the swamps in the desert east of Damascus—are known to be abnormal in their capacity for existence in unfavourable conditions.

These fish belong mainly to two families, the Siluridae and the Cichlidae—or Chromides as they were formerly called. The Siluridae are represented by a single species of the genus *Clarias* (*C. macracanthus*), a genus regarded by some ichthyologists as the type of a separate family, the Clariidae.

[1] *Journ. As. Soc. Bengal* (n.s.) IX, pp. 25-29 (1913).
[2] *Faun. Flor. Palestine* (*Survey Western Palestine*), p. 171 (1888).

This group of cat-fishes has an accessory breathing apparatus that allows its members to live out of water for considerable periods. Tristram has described a shoal of the Galileean species making its way up a stream so small that the fish were but imperfectly covered, and there can be no doubt that, like many fish common in the Oriental Region, *C. macracanthus* actually migrates on land through damp vegetation from one body of water to another. As early as the first century of our era, Josephus noted the identity of *C. macracanthus* (which he called *coracias*) with a fish common in the lakes near the Egyptian Alexandria, and cited a popular belief apparently founded on this fact, that the Fountain of Capernaum was a "vein of the Nile." This has been generally interpreted as meaning that the fountain was believed to be connected with the Nile by an underground passage. It is perhaps the first reference to zoogeography in literature, and the only surprising thing about it is that though the conclusion was incorrect the premises were perfectly accurate. The cat-fish of the Lake Tiberias *is* identical with that of the lower Nile, but its peculiar habits and structure explain its occurrence in isolated basins without the necessity of imagining underground channels. Possibly the species is not Ethiopian in origin at all, being Egyptian, *i.e.* Palaeartic; but the genus is mainly tropical.

The Cichlidae as a family are even more remarkable for their powers of resistance than the Siluridae and there can be no doubt about the Ethiopian origin of the Jordanic species. Their powers depend rather on physiological than on structural peculiarities. Species of the family abound in tropical Africa and South America, but (apart from excursions into North America, Palestine and Syria) are almost confined to the Ethiopian and Neotropical Regions. A single genus (*Etroplus*) with three species makes its way as far east as, but no further than, Peninsular India and Ceylon.

The species of Cichlidae that occur in the Jordan system belong, according to Boulenger,[1] to two genera, *Tilapia* and *Paratilapia*, both of which are of undoubted Ethiopian origin. Several of the species are identical with those found in tropical Africa and in the Nile. Both genera are known to live in brackish water and one of the Palestinian species of *Tilapia* has been found even in artesian wells[2] sunk in the sands of the Sahara.

A remarkable instance of the vigour of the family has recently been provided by one of the Indian species (*Etroplus suratensis*). This fish, commonly found both in fresh and in

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[1] Boulenger, *Cat. Fresh-water Fishes Africa* III, pp. 138, 308 (B. M. 1915).

[2] Boulenger, *Fishes of the Nile*, p. 465 (1907).

brackish water, is not known to enter the sea; yet it has been proved in the Madras Aquarium[1] that it will live for years in pure sea-water. Dr. Henderson tells me, moreover, that the individuals in that aquarium, though living under unnatural conditions, are not affected by a bacterial and fungoid epidemic disease that periodically destroys large numbers of marine fish in adjacent tanks. The fact that the genus has penetrated so far east as India is, indeed, in itself evidence of the adaptability of the Cichlidae.

It is thus clear why African fish have been able to survive in the Jordan and its lakes—because the species are so adaptable in their habits and physiology that they can survive changes sufficiently violent to kill the majority of aquatic animals.

That several of the Jordan species of Cichlidae are endemic is in no way remarkable, for many fish of the family are apparently confined to a single African lake. As in many widely distributed and adaptable animals, isolated groups of individuals are liable to become so differentiated that they ultimately form distinct species.

To turn to the invertebrates: a small number of species that are common to Africa and tropical Asia, and may, so far as their structure and distribution are concerned, have had either an Ethiopian or an Oriental origin, are found in the Lake of Tiberias; but there is not a single invertebrate known from any part of the Jordan system that can be confidently claimed as Ethiopian even in respect to genus. I have already drawn attention (p. 460 *antea*) to the absence of exclusively Ethiopian forms, in particular among the Unionidae.

Of the Palaeotropical species all are either extremely adaptable in their habits or else may be classed rather as amphibious than as aquatic. To the former category belongs the mollusc *Melania tuberculata*, a species found practically everywhere in both the Ethiopian and Oriental Regions and also in some Mediterranean localities. It is one of the commonest of the Indian freshwater Gastropods and is found in this country both in fresh and in brackish water, being peculiarly abundant in the Gangetic delta. In many parts of its range the species gives origin to varieties,[2] some of which are localized, while others occur side by side with the parent form. In the Lake of Tiberias also this is the case, for

[1] Henderson, *Guide to the Marine Aquarium*, p. 10 (Madras: 1912).

[2] In Preston's recently published volume on the freshwater Mollusca in the *Fauna of British India* (1915, pp. 15-17) seven Indian varieties of "*Tiara* (*Striatella*) *tuberculata*" are described. It is very unfortunate that no serious attempt seems to have been made in that volume, which might have been of the greatest possible value to students of the geographical distribution of the Indian Mollusca, to collate even the recorded localities of the Gastropods described.

we find the well-marked endemic variety *elongata* occurring with the typical *tuberculata*. It is perhaps noteworthy as illustrating the adaptability in habits possessed by *M. tuberculata* that, whereas in the Lake of Tiberias it lives in comparatively deep water and is rarely found at the margin, in Calcutta ponds it swarms at the edge and rather avoids the central parts.

Amongst the amphibious Palaeotropical forms included in the Tiberias fauna there are several insects, for example the bug *Rhagovelia nigricans* and some of the dragon-flies. In the latter forms, however, the relationship is generic rather than specific.

From these facts it seems legitimate to conclude that the Palaeotropical element, whether its origin be from the east or from the west, consists of species or genera that have peculiar powers either of withstanding changes in environment or of making their way from one body of water to another.

Considering the presence of African fish, it may further be regarded as probable that the Palaeotropical element is mainly, if not entirely, of African origin so far as true aquatic form are concerned, though some of the insects have probably come from the East. All that can be stated against this view is the presence of the fish *Discognathus* in the Jordan and its lakes, and the slightly dubious occurrence in India of the Oligochaete worm *Criodrilus lacuum*,[1] which, however, is also found in Eastern Europe. For the distribution of *Discognathus* it is difficult to account. The genus consists of a number of forms so closely related that some authors regard them as varieties or races rather than species; its range extends over a wide stretch of land from Syria to Yunnan on the one hand and to Abyssinia, Arabia and South India on the other. The fish's peculiar habit of clinging by means of an oral sucker to living bodies in the water near it may have assisted in its distribution and it is probably that like many of the family to which it belongs it is hardy and able to endure removal from water for a considerable period. No information on this latter point is, however, at present available.

Apart from any tropical element in the Jordan fauna, there is one that appears to be of African origin, though not technically Ethiopian, being apparently derived from Egypt. This element consists of a few amphibious species that may have made their way for some little distance overland. Its most conspicuous representatives are the crab *Potamon potamios* and the frog *Hyla arborea savignyi*. The latter, except

[1] The Indian record is founded on immature specimens and is in any case so remarkable that a further investigation is necessary. See Stephenson, *Mem. Ind. Mus.* V, p. 145 (1915).

in its larval stages and at the breeding-season, can hardly be regarded as an aquatic animal, while the crab is known to make long excursions on land in wet weather.

The existence of these Egyptian species in the Lake of Tiberias illustrates a phenomenon of wide application, *viz.* the separation by the Nile of the freshwater fauna of the Mediterranean basin into two geographical sections ; one section occurring in North Africa west of the Delta and also in the northern Mediterranean countries, the other in Palestine, Syria, Asia Minor and the adjacent districts. It is not yet altogether clear how far the latter is different from the aquatic fauna of countries lying immediately to the west of Asia Minor. but the separation, so far as it may exist in this direction, is certainly less marked than that produced by the Nile. The same phenomenon is illustrated in another way by certain other Tiberiad species, in particular by the prawn *Atyaëphyra desmarestii* and the tortoise *Emys orbicularis.* The former is completely aquatic in its habits and occurs in fresh water all round the Mediterranean except in Egypt, in which it has apparently been displaced by a more vigorous representative of an allied genus (*Caridina nilotica*), a species most probably of Ethiopian origin, but one that has spread not only over practically the whole of the African continent, but also all over the Oriental Region and as far east as Celebes, without penetrating into Palestine. The tortoise is of course less completely aquatic, but its distribution is similar to that of *Atyaëphyra.* In the case of the reptile there seems to be no difference in structure and colouration between specimens from North Africa, from Palestine or from Europe, but Bouvier,[1] who was unaware that the prawn had been found in the Jordan, has recently distinguished two races of *A. desmarestii*, one (*orientalis*) occurring in Syria, the other (*occidentalis*) in Europe and North Africa. The Jordanic form is probably identical with the Syrian, but unfortunately my series from the Lake of Tiberias is deficient in males, and it is on the male characters that the races are mainly distinguished.

The geological history of the Lower Nile is still obscure and the influence of large rivers in the zoogeographical history of aquatic animals, not only as paths of immigration but also as barriers. has not received the attention due to its importance as a factor in their distribution. It is any rate clear in the present instance that the Nile has been an obstruction rather than a highway so far as the freshwater fauna of the Mediterranean basin is concerned, and that it has acted in this capacity in two ways. firstly by separating those individuals that lived in North Africa before the river adopted its present course from those that lived immediately to the east and north of its delta, and

[1] *Bull. Mus. d'Hist. nat.* (Paris) 1913, pp. 65-67.

also by introducing from the Ethiopian Region species such as *Caridina nilotica* that proved capable of ousting their endemic relatives in its lower waters.

Egyptian species must of course be included in the Palaearctic fauna, which considered as a whole provides by far the largest part of the fauna of the Jordan system. In this local fauna, however, the Palaearctic element is mainly of northern or eastern origin, having close affinities with that of Asia Minor on the one hand and with that of Mesopotamia on the other—as is shown more particularly by the Unionidae among the molluscs and by the Cyprinidae among the fishes.

The aquatic fauna of the Lake of Tiberias must be mainly of recent origin. There are a considerable number of species endemic either in the lake or in the river-system of which it forms a part, but none of these species are in any way highly specialized. The only endemic genus is represented by the sponge *Cortispongilla barroisi*, which is only found, so far as we know, at one particular spot in the lake.

Perhaps the most characteristic feature of the fauna of deep freshwater lakes in a warm climate that have had a lengthy geological history is the high degree of specialization reached by the molluscs, for the differentiation of sponge-genera seems to depend on entirely different factors and to be the result of environment in a more direct manner and in one that is more easily understood.[1] The evolution of peculiar mollusc-genera is best shown in Lake Tanganyika, but also in Lake Tali Fu in Western China and in some of the lakes of Celebes, in which remarkable Gastropods with shells of a peculiar marine facies are found. In the case of Lake Tanganyika[2] it was at one time believed that this peculiarity was due to a comparatively recent connection with the sea, but all evidence put forward in support of any such view has now been strongly controverted and the Tertiary deposits in the neighbourhood seem to prove definitely that a lacustrine fauna of perfectly normal type existed in the lake at a period geologically by no means remote.[3] In the Lake of Tiberias the shells have a distinctly marine appearance owing to the fact that they are all thick, containing a large amount of calcareous matter, and that a few of the commonest species (*e.g. Melanopsis costata* and *Theodoxis jordani*) are more conspicuously coloured than is usually the case in freshwater shells. The latter fact is probably no more than a coincidence, while the thickness of the shells cannot be due to evolution *in situ*, but is rather

[1] Annandale, *Journ. As. Soc. Bengal* (n.s.) IX, p. 71, etc.

[2] See Moore's Volume *The Tanganyika Problem* (London: 1903).

[3] For a recent discussion on this point and for references see Germain's paper "Origin de la Faune fluviatile de l 'Est Africain". *IX Congres Internat. de Zoologie, Monaco*, pp. 557-571 (1914).

correlated, as I have pointed out above, with the fact that thin-shelled species, some of which occur in neighbouring parts of the Jordan-system, cannot survive in the water of the lake.

The fauna of the lake differs very considerably in its essential characters from that of the much larger bodies of water referred to above, although it has a certain superficial similarity in general facies. There is no reason to regard it as having been evolved in the old Jordan Lake of Pliocene times, for the existence of that lake was probably short and the statement frequently made by geologists that shells found in raised beaches near Tiberias which marked former water-levels, are identical with those that now occur in the lake is in most cases correct only so far as genera are concerned; and in some incorrect even to this extent. *Melania tuberculata* certainly is found on these beaches: so are *Unio* and *Corbicula*, but no detailed comparison between the recent and fossil shells seems to have been made and Blanckenhorn[1] cites among the identical species representatives of thin-shelled genera (*Ancylus* and *Limnaea*) that do not occur, or occur only in great scarcity, at present in the Lake of Tiberias.

All these facts seem to me to point to their having been a period in the history of the Jordan system at which the fauna of the Jordan Lake, or rather of the relics that remained of it, was subjected to great hardships. Under these hardships a considerable number of species perished. A few, however, survived, including the characteristic Ethiopian fishes and such vigorous molluscs as *Melania tuberculata.* When this period of stress had been accomplished and happier conditions returned a new fauna migrated into the lake and into other parts of the system from the districts lying to the north and to the east. It was enabled to do so by such accidents as floods and high winds, by the assistance of wading birds and possibly of other animals. A considerable proportion of it, moreover, took an active part in the migration either by flight or by crawling over land from pool to pool or from stream to stream. Probably some of the animals that survived underwent a certain amount of structural change in or subsequent to the period of hardship and thus became endemic species, while some of the immigrants also underwent similar changes after their arrival.

The easiest way to account for the occurrence of such a period seems to me to be the suggested existence of a temporary obstruction of the outflow of the Lake of Tiberias—and probably also of other parts of the Jordan system—that caused a considerable rise in salinity. When this obstruction

[1] *Naturwiss. Stud. Toten Meer und Jordantal*, p. 339 (Berlin: 1912).

was removed—it has not disappeared in the case of the Dead Sea—the salinity of the water decreased owing to the resumption of a steady flow and perhaps to climatic changes that produced a greater volume in the stream.

Throughout the foregoing argument it has been assumed that the fauna of the Lake of Tiberias is a fair sample of that of the Jordan system as a whole. One exception has, however, been noted, *viz.* that of thin-shelled molluscs unable to withstand the chemical action of the water of the lake. With this exception, which is not a very important one, the assumption is justified. The Lake of Tiberias is the only remnant of the old Jordan Lake in which anything like normal lacustrine conditions have persisted, for the Dead Sea is of course out of the question, while the waters of Merom now form a swamp rather than a lake. They are very shallow, densely filled with vegetation and liable to be heated to a high temperature by the rays of the sun, while the formation of the basin renders it very difficult to investigate thoroughly from a zoological point of view. Our knowledge of the fauna of the Lake of Tiberias, on the other hand, is probably more complete than that of any part of the river flowing through it. The comparatively large number of species apparently endemic in its waters may be partly due to this cause, and therefore more apparent than real; but it is also due in part to the fact that many animals which would perish in running water can live in the still depths of a comparatively deep lake. The number of species found in the Jordan and not in the lake is small, and may be explained in a similar manner.

GENERAL CONCLUSIONS.

My views as to the origin of the aquatic fauna of the Jordan system may therefore be summarized as follows:—

1. This fauna is mainly Palaearctic but contains a distinct Ethiopian element.
2. The origin of the latter element is best explained on the grounds set forth in particular by Gregory in his "*Great Rift Valley*", *i.e.* by the existence in Pliocene times of a river flowing southwards into the Indian Ocean from what is now the Jordan system.
3. The peculiar circumstance that the Ethiopian element consists exclusively or almost exclusively of fish is due to the fact that the particular families to which these fish belong possess an extraordinary vitality and have very special powers of physiological adaptation to environment.
4. The absence or paucity of Ethiopian forms among the invertebrates of the system is best explained by

supposing that the outlet of the Lake of Tiberias and possibly other parts of the system may at a comparatively recent date have been temporarily obstructed in such a way that their water became for a period strongly saline, and that a large proportion of the older fauna therefore perished, its place being taken, when the water again became fresh, by immigrants from the surrounding districts.

5. The Palaearctic element in the fauna is composite and of comparatively recent origin, consisting mostly of species that have made their way into the system either from the north or from the east, but also including a few species that appear to be of Nilotic origin.
6. The northern and eastern Palaearctic animals, in cases in which they had no powers of independent progression on land, probably reached the system through floods or other occasional agencies.
7. The Nilotic species are mostly amphibious and may have arrived on their own feet or wings. They afford, however, an interesting instance of the manner in which the Nile has separated the freshwater fauna of the Mediterranean basin into two geographical sections.
8. This phenomenon is also illustrated in another direction by certain species that occur both in the Jordan Valley and in North Africa, but are absent from the Nilotic Delta; and it is evident that the separation has been effected in two ways:—the assumption by the Nile of its present course has separated individuals living to the west from those living to the east of the Delta, while the path afforded by it has been utilized by vigorous species of Ethiopian origin which have ousted their less vigorous endemic relatives.

IV. SOME OF THE MORE RECENT AND MORE IMPORTANT WORKS ON THE AQUATIC ANIMALS OF THE JORDAN SYSTEM.

GENERAL.

Annandale .. "Introduction to a Report on the Biology of the Lake of Tiberias," *Journ. As. Soc. Bengal* (n. s.) IX, pp. 17-23 (1913).

" .. "The African Element in the Freshwater Fauna of British India," *IX Congrès internat. de Zool. Monaco*, pp. 579-588 (1914).

Barrois .. "Contribution à l'étude de quelques lacs de Syrie," *Rév. biol. Nord France* VI, pp. 224-312 (1894).

Blackenhorn .. *Naturwiss. Studien am Toten Meer und im Jordantal* (Berlin : 1912).

Christie .. "The Composition of the Water of the Lake of Tiberias," *Journ. As. Soc. Bengal* (n. s.) IX, pp. 25-29 (1913).

Gregory .. *The Great Rift Valley*, chap xiii (London : 1896).

Hull .. *Memoir on the Geology and Geography of Arabia, Petraea, Palestine*," etc. (1889).

,, .. "On the Physical Conditions of the Mediterranean Basin," *Trans. Victoria Inst.* (1895).

Lortet .. "Etude zool. sur la Faune du Lac de Tibériade, Introduction," *Arch. Mus. Hist. Nat. Lyon* III, pp. 101-128 (1883).

Suess .. *The Face of the Earth* (Eng. edit.) II, pt. iii, chap. xi (1906).

Tristram .. *Survey of Western Palestine : Fauna and Flora* (Palestine Exploration Fund; London: 1888).

PORIFERA.

Annandale .. "An Account of the Sponges of the Lake of Tiberias," etc., *Journ. As. Soc. Bengal* (n. s.) IX, pp. 57-88 (1913).

Topsent .. "Sur une Eponge du Lac de Tibériade," etc., *Rev. biol. Nord. France* V, pp. 85-91 (1892).

,, .. "Sur une Ephydatie (*Ephydatia fluviatilis* Autt.) du Lac de Houleh," *ibid.*, pp. 326, 327 (1892).

,, .. "Decription d'une variété nouvelle d'Eponge d'eau douce," etc, *Bull. Soc. Amis des Sciences Rouen*, pp. 1-5 (1909).

TURBELLARIA.

Whitehouse .. "The Planarians of the Lake of Tiberias," *Journ. As. Soc. Bengal* (n. s.) IX. pp. 459-463 (1914).

ROTATORIA.

Barrois and von Daday .. "Contribution à l'étude des Rotiféres de Syrie," *Rév. biol. Nord. France* VI, pp. 391-410 (1894).

Harring .. "Synopsis of the Rotatoria," *U. S. Nat. Mus. Bull.* LXXXI (1913).

Rousselet .. "A Note on Rotifers from Galilee," *Journ. As. Soc. Bengal* (n. s.) IX, pp. 231-232 (1913).

ANNELIDA.

Annandale .. "The Leeches of the Lake of Tiberias," *Journ. As. Soc. Bengal* (n. s.) IX, pp. 211-214 (1913).

Blanchard .. "Viaggio del Dr. E. Festa in Palestina, nel Libano e regioni vicine, III.—Hirudinées," *Boll. Mus. Torino* VIII, no. 161, pp. 1-3 (1893).

,, .. "Voyage du Docteur Théodore Barrois en Syrie : Hirudinées," *Rev. biol. Nord France* VI, pp. 41-46 (1894).

Harding .. "Note on Leeches sent by Dr. E. W. F. Masterman from Palestine," *Parasitology* I, pp. 282, 283 (1908).

Masterman .. "Hirudinea as Human Parasites in Palestine," *Parasitology* I, pp. 182-185 (1908).

Rosa .. "Viaggio del Dr. E. Festa in Palestina, nel Libano e regioni vicine, II.—Lumbricidi," *Boll. Mus. Torino.* VIII, no. 160, pp. 1-14 (1893).

Stephenson .. "Aquatic Oligochaeta from the Lake of Tiberias," *Journ. As. Soc. Bengal* (n. s.) IX, pp. 53-56 (1913).

,, .. "Littoral Oligochaeta from the Chilka Lake on the East Coast of India," *Rec. Ind. Mus.* X, pp. 255-260 (1914).

,, .. "Fauna of the Chilka Lake: Oligochaeta," *Mem. Ind. Mus.* V, pp. 141-146 (1915).

POLYZOA.

Annandale ... "The Polyzoa of the Lake of Tiberias," *Journ. As. Soc. Bengal* (n. s.) IX, pp. 223-228 (1913).

ARACHNIDA.

Koenike .. "Liste des Hydrachnides recueillies par le Docteur Théodore Barrois en Palestine, en Syrie et en Egypte," *Rév. biol. Nord France* VII, pp. 139-147 (1895).

CRUSTACEA.

Annandale and Kemp .. "The Crustacea Decapoda of the Lake of Tiberias," *Journ. As. Soc. Bengal* (n. s.) IX, pp. 241-258 (1913).

Barrois .. "Liste des Phyllopodes recueillis en Syrie par Théod. Barrois," *Rév. biol. Nord France* V, pp. 24-39 (1893).

,, .. "Liste des Décapodes fluviatiles recueillis en Syrie," etc., *Rév. biol. Nord France* V, pp. 125-134 (1893).

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INSECTA.

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MOLLUSCA.

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[1] I have not seen this paper.

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CRANIATA.

Annandale .. "Note on the Fishes, Batrachia and Reptiles of the Lake of Tiberias," *Journ. As. Soc. Bengal* (n. s.) IX, pp. 31-41 (1913).

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[1] See this author for further references to the older literature on the Mollusca of Palestine.

26. NUMISMATIC SUPPLEMENT No. XXVI.

Note.—The numeration of the articles below is continued from p. 251 of the "Journal and Proceedings" for 1915.

152. The Asvamedha Coins of Samudragupta.

In October, 1913, the United Provinces Government presented to the Lucknow Provincial Museum some gold coins of Samudragupta found at Kaswara in the Ballia district. They included a coin of the Āsvāmedha type which possessed a special interest in that the obverse showed somewhat distinctly a continuation of the hitherto published legend found on such coins. In March, 1914, I was fortunate in obtaining another specimen of this type which gave practically the full obverse legend, and I prepared a note on these two coins with a view to publication. But the appearance of a note by Mr. Campbell[1] on the Ballia coin and another later by Mr. J. Allan of the British Museum publishing the full legend with an interpretation in the Numismatic Supplement No. XXIII, Vol. X, No. 6, 1914, pp. 255-6 issued in October, 1914, rendered it advisable to withhold my paper. An interpretation of the legend was however given in the Annual Report of the Lucknow Museum which appeared in June, 1914.[2]

In November, 1914, I obtained another good specimen of the same type from a goldsmith of Etāwah. Though the obverse legend on it is not complete, yet the portion that exists is clear and well preserved.

In this set of Samudragupta coins of the Āsvāmedha type which have recently been noticed by Messrs. Campbell and Allan or are being published now there are at least two distinct varieties. Full particulars of Dr. Hoey's coins are not known to me. But the specimens which I have obtained, i.e. one at Lucknow and the other from Etāwah, are certainly struck from different dies. I publish both here, calling them A and B (A weighs 115 grs. and B 117 grs. only).

The style of lettering they display is different—the difference being more marked in the reverse legend. Pennons on the sacrificial post of Yūpa, the *chowrie* as well as the sacrificial spear and the fillet are all differently cut. The beading on the reverse

[1] J.A.S.B., Vol. X, No. 5, 194, Numismatic Supplement No. XXII, p. 174.

[2] Annual Report on the working of the Lucknow Provincial Museum for the year ending 31st March, 1914, p. 3. There I read *prithivim*. I will not, however, add any *anusvāra* now, but make this word the first component of the compound forming one epithet, viz. prithivī-vijitvā

is also dissimilar. On both of these coins the syllable following the symbols for *viji* is clearly *tvā* and not *tya.* According to Mr. Allan this is the case on the majority of these coins. Now the question is whether *vijitvā* is really an impossible form or whether there is any provision for it in Sanskrit Grammar? Ordinarily the formation of gerunds by the addition of the suffix *tvā* is not allowed if the verb is compounded with a preposition or ends in a short vowel. We add *tvā* to *ji* but *tya* to *vi ji.* It does not appear very likely that a mistake should remain undetected or be allowed to recur in numerous specimens. I am disposed to think that the form is quite possible and that Panini allows it under his rule अन्येभ्योऽपि दृश्यते.[1] According to this aphorism we can add the suffix *kvanip* and get the stem *vijitvan* like *prātaritvan.*[2] When compounded with the word *prithivī* it will form one epithet in *prihtivī vijitvā*, meaning "the earth or world conqueror." There is no symbol for *anusvāra* on *prithivī*, and it is not at all necessary to read it with a nasal sound or make it accusative singular. In the circumstances I think the legend should read as follows :—

Rājādhirāja (h) prithivīvijitvā
Divaṁ jayatyāhrtavājimedha (ḥ)

"The king of kings, the world-conqueror and the performer of the horse-sacrifice, wins heaven."[3]

Lucknow. HIRANAND SHASTRI.

[1] Ashtādhyāyi III, 2. 75.

[2] Cf. Vāmana; kas'kā. III, 2. 75.

[3] Here I can not refrain from pointing out that the stanza seems to have a dosha-(blemish) which a rhetorician would call virudda Mnatrskrt. suggesting an undersirable meaning, for it makes us think that the king has departed to the next world. Perhaps the implication will be stronger in the case of *Vijitya.*

153. Billon issues of Sikandar Lodi.

The find of more than 5000 Lodi coins in the Hardoi district throws some fresh light on perhaps the least interesting productions of the Pathān Sulṭāns of Dehli.

Thomas gives an inscription on the reverse terminating in the words بحضرت دهلی. Rogers notes that certain coins in the Punjab Museum bear the word حضرت ; but the Indian Museum Catalogue omits all mention of a mint.

It has now been established that the reading given by Thomas is correct, but only up to a certain point. The mint occurs not infrequently, but only on coins of a distinct type. These are the natural successors of the Dehli issues of Bahlol. The script is similar and apparently all these coins contain a much smaller proportion of silver than the later issues of Sikandar Lodi. The latter begin about 904 H. when not only does the script change, assuming a peculiarly ugly and angular form, but the coins are of a different size, being larger than the thick small coins of the reign of Bahlol and the early years of Sikandar. There is an intermediate period from 900 H. to 903 H. when we find coins of a large size but of the old form of script, quite different in general appearance, however, from the early and the late issues.

The curious fact is this, that the professedly Dehli-minted coins continue in a parallel series till 915 H. at least, the appearance and shape remaining unchanged. The coarsely written larger coins, which are obviously the basis of the *Sikandari gaz*, to which Thomas refers, unquestionably have no mint name on the reverse. Under the word سلطان I have found in several instances a portion of the circular ring which marked the outside edge of the die. The obverse had a square double border, with a loop in the centre of each side. These are the coins which contain a larger proportion of silver, as Thomas notes, and I am disposed to regard them as a distinct issue to the Dehli series.

They do not occur before 901 H. and I offer the tentative suggestion that they were not minted at Dehli at all, but at Sikandar's newly founded capital of Agra, where the royal palace was erected at least as early as 900 H.

Of the whole find only one coin is unusual. This is of 894H. the first year of Sikandar, and on this the words بحضرت دهلی come immediately under the name of Bahlol, the word سلطان being placed in the same line as بهلول, and driven obscurely into a corner. This coin has been acquired for the Lucknow Museum.

H. R. Nevill.

Etawah.

154. A Silver Dirham of Bastham (Vastham) Sassanian Ruler in Khorasan in Persia.

In June last my friend Mr. Cawasjee Eduljee Kotwal, of Bombay, stated to me that he had acquired along with some Sassanian dirhams a dirham of Firoz Bastham which he attributed to this king on having it compared with one figured as No. 82, Pl. VII, fig. 5, in Mr. Edward Thomas's "Sassanians in Persia", published in 1873.

On my informing Mr. Kotwal that his coin was unique as regards the regnal year on it, he very kindly gave me permission to publish the dirham. This coin of his resembles in nearly all respects the coin figured by Mr. Thomas, except that the regnal year is 10 written اشرا instead of ثلثا = 3.

Dirhams of Bastha m—seven in all—according to Dr. A. D. Mordtmann, have been known of the following regnal years:—

2 Dirhams of the regnal year		..	2
1 Dirham	,,	..	3
2 Dirhams	,,	..	4
1 Dirham	,,	..	5
1 Dirham	,,	..	6

Total 7

It has been stated that Bastham—more properly termed Vastham—ruled from A.D. 592-597. Now, by the help of Mr. Cawasjee's coin, we can with certainty say that the reign must have extended over a longer period than the six years hitherto assigned to it.

Very little is known regarding the history of Bastham, as he is not reckoned as one of the Sassanian monarchs. He was a son of Aspabed, and a maternal uncle of Khusrau II. Both he and his brother Bindoe were instrumental in compassing the death of Hormazd IV, their brother-in-law (sister's husband), and the father of Khusrau. Bastham was at first appointed Governor of Rei, and Khorásán, but subsequently on his becoming more powerful he revolted against Khusrau, and proclaimed himself independent King of Khorásán. He caused coins to be struck in his own name. His object was to invade the capital of Persia, but before he could do so, the vengeance of his nephew Khusrau (on account of the murder of his father Hormazd IV), pursued him, unrelentingly, and he was finally murdered.

Bastham styles himself on his coins *Firoz Vastham* or *Vastham Firozi*, that is the victorious Vastham. Note also that Kobad II (Shiruiah) is on his coins called Kavát-e-Fírozí, that is the victorious Kobád. The word Fírozí is therefore a *title* and not a name, on the coins of Vastham, and Kavat II

(S͟hīruiah). On the other hand the name of the father of Kobád I, and grandfather of Nus͟hirwán the Great (K͟husrau I), was Firoz. He called himself on his coins *Kadi Fírozí*, that is *King Firoz.*

Description of Dirham.

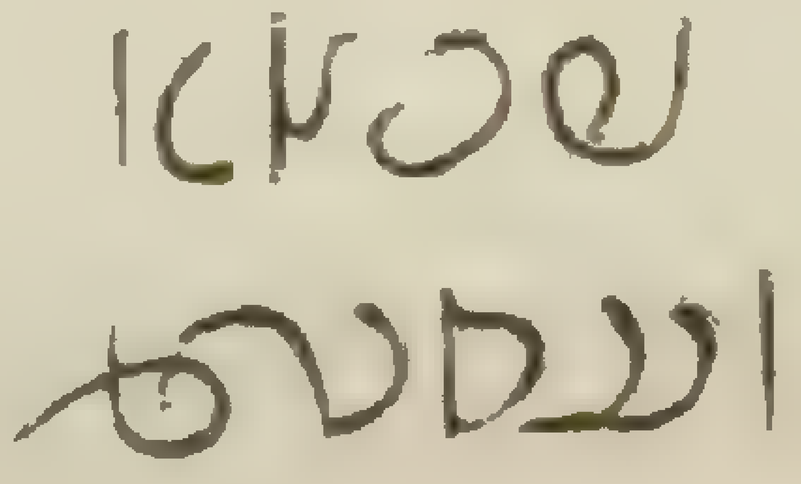
Metal—silver.
Weight—56 grains.
Diameter—1·25 inch.
Date—Regnal year 10.
Mint—*RaD* or *RuD.*

Obverse.—Bust of king to right within a dotted circle with a crown crenulated behind, a crescent with enclosed star in front, and a star behind. Two stars appear in the field, and a star with crescent on each shoulder. The king has a close beard and lank hair. He wears a triple-drop earring and a necklace of two strands. Outside the circle there appear four marginal crescents, each with a triple device in its bosom.

Legend.—To left behind the back of the bust (reading from inside, and from right to left) in Pahlavi characters

= افزون = increase and a monogram

To right in front of face reading from outside, in two lines in Pahlavi characters



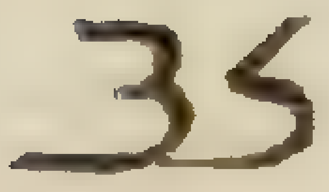
فيروجهي وستهم = Fírozí Vastham, i.e. the victorious Vastham.

Reverse.—Within a dotted circle an Atas͟hdán (fire receptacle)—by European writers commonly called a fire-altar—with flames ascending in a conical form and at base two steps, on either side guardian mobeds (Parsee priests) facing front, and each holding in his two hands a long sword, point downwards. To right of flames a crescent, and to left a star. No crescents appear outside the circle.

Legend.—To left (reading from inside, and from right to left) in Pahlavi characters =

= Asra اشرا = 10, i e. the 10th regnal year.

To right reading from outside, Pahlavi characters =

 = *Rad*, or *Rud.*

No mint monograms other than *Rad* or *Rud* have been known on dirhams of Vastham. We can, therefore, conclude that his authority must have been confined to some places in Persia at or near *Rad* or *Rud*.

The monogram *Rud* on coins of Vastham is applicable to the city known as S̲hahrud in K̲horásán where Vastham held sway.

Regarding the history of K̲horásán, the Hon'ble Mr. George N. Curzon, M.P. (now Lord Curzon) in his book entitled "Persia," Vol. I, published in 1892 (page 180), says:—

> K̲horásán has experienced a history of great and stormy vicissitudes. Situated on the borders of Iran, it has been the perpetual theatre of armed struggle, and a favourite battle-ground of races. Its capital cities have alternately excited by their dimensions the bewildered admiration of Arab chroniclers, and have been swept off the earth, as though by a tornado, by the passions of conquerors and kings. It has been the residence of great monarchs, and the nucleus of mighty empires. At one time its name implied a dominion that included Kharezm (Khiva) and Merv on the north, that stretched to the Oxus and embraced Balkh, the mother of cities, of which Herat was a central point, and that extended beyond Kandahar. Later as limb after limb was torn away, and independent sovereignties were created out of the fragments, its boundaries became more and more contracted, until the Kings of Persia would sometimes have found it difficult to say how much they really held of Khorasan." * * *

The mint monograms have proved a great puzzle to students of Sassanian numismatics, but thanks largely to the labours of Dr. A. D. Mordtmann, Mr. Edward Thomas, and Mr. J. de Morgan, several of the mints can now be identified.

FRAMJEE JAMASJEE THANAWALLA.

Bombay.

155. A Rupee of 'Ālam Shāh, Sulṭān of Dehlī.

Metal: Silver.
Size: 8 inches = 20 mm.
Weight: 175 grains.
(Is in a very good state of preservation).

Obverse:

سلطان علاء الدنيا و الدين عالمشاه بن محمد شاه بن فريد شاه

Reverse:

في زمن الامام امير المومنين خلدت خلافته

Provenance: Dhanaurā, District Murādābād, U.P.

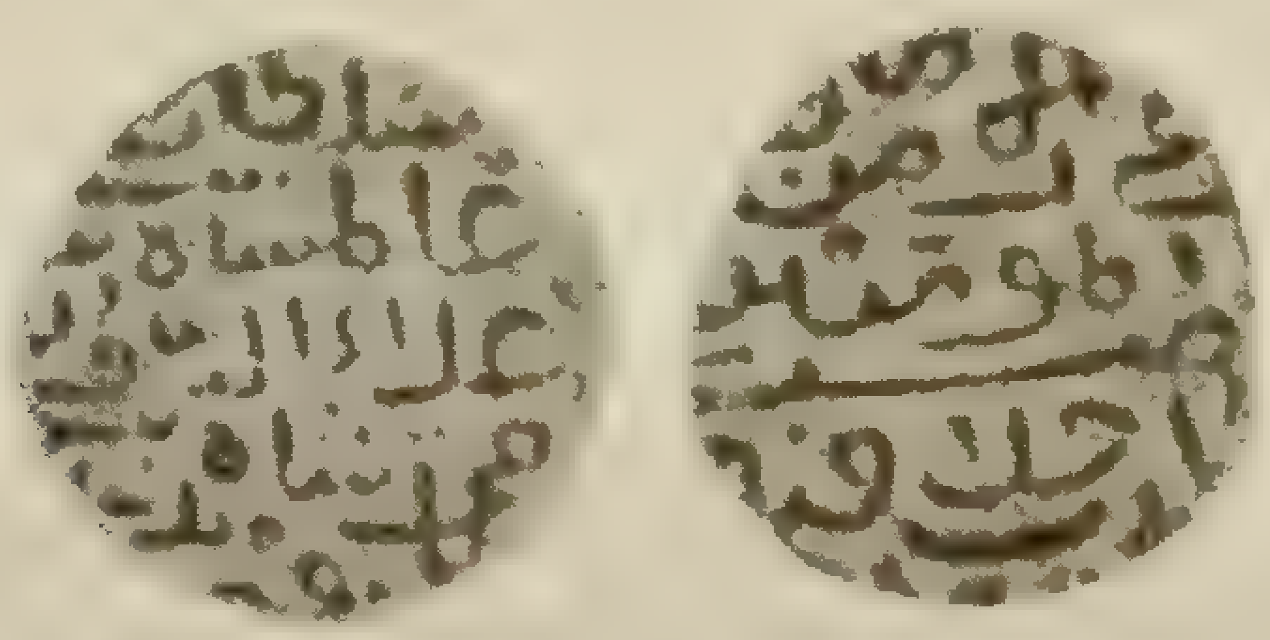
Thomas says in the Chronicles (p. 338): "The 'Ala-ud-din bin Mohammad of the historians, who is entitled 'Alam Shāh on the current money, succeeded his father in 847 A.H."

This coin gives the full name as well as the title of the King.

No other silver coin of this King seems to be known.

'Ālam Shah was deposed by Bahlol Lodhi in 855 A.H.

Panna Lāll.



156. A Rare Rupee of Jahāngīr.

Mint: Ajmer.
Metal: Silver.
Size: 75 inches = 19 mm.
Weight: 172·5 grains.
Year: A.H. 1024.

Obverse:

١٠٢٤
اكبـــــر
شهنشاه
شـــــاه
جهانگير

to the left of جهانگير

flowered field.

Reverse:

بر زر

قد ——— ح

زد سکه

جهـ ——— ر

دو ا

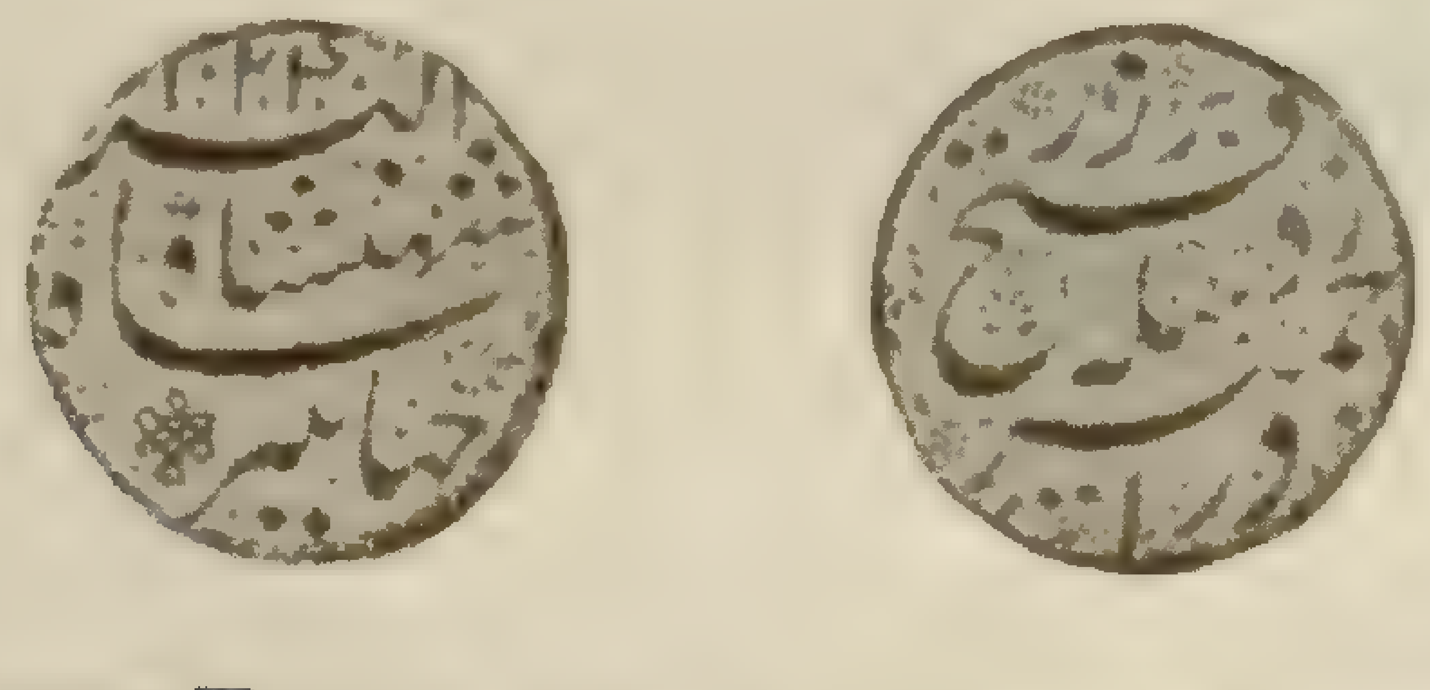
flowered field.

In a very good state of preservation.

Provenance: Mughalpūr, District Murādābād, U.P.

This coin was struck at Ajmer, apparently to commemorate the victory of Jahāngīr over the Rānā Amarā of Udaipūr. It is well known that the ancestors of Jahāngīr had been unable to reduce the Rānā of Udaipūr into complete submission. Jahāngīr resolved to make an effort. He says in his memoirs: "Eighth year of my reign 1022 A.H., I determined to move to Ajmer and send my fortunate son Khurram before me; and having fixed the moment of departure, I dismissed him with magnificent khilats, and elephant, horse, sword, shield and dagger, and beside his usual force added twelve thousand horse under 'Azīm Khān, and presented to all the army suitable gratification." The prince was entirely successful. "Pleasing intelligence arrived," says Jahāngīr, "of the intention of Rānā Amrā Singh to repair and make his obedience to me. My fortunate son Khurram had established my authority and garrisons in diverse strongholds of the Rānā's country which owing to the malign influence of the air and water, its barrenness and inaccessibility it was deemed impossible to bring under subjection." In 1024 the Rānā Amrā Singh sent his son Karan and later his grandson Jagat to pay homage to the Emperor at Ajmer. There were great rejoicings: and naturally the coins commemorated the victory.

PANNA LALL.



157. TREASURE-TROVE COINS OF THE BENGAL SULṬĀNS.

A find of 100 silver coins in the Khulna district is of some importance. With the exception of one common coin of 'Alāu-d-dīn Muḥammad Shāh of Dehli the whole find consists of issues of the early Sulṭāns of Bengal, from Fakhru-d-dīn Mubārak Shāh to Shahābu-d-dīn Bayāzīd, thus covering at the outside a period of 70 years.

The hoard was probably buried soon after 817 H. or A.D. 1414. There are none of the relatively common issues of either Muḥammad or Maḥmūd, and to judge from their appearance the coins must have remained under ground, in most unfavourable conditions, for a very long period. To clean them without defacing them was a lengthy and troublesome task. Although most of them are composed of relatively pure silver they were affected in many cases by decomposed iron and copper, while some were badly calcined. The most successful results were obtained by a brief preliminary bath in weak nitric acid, followed by an exposure to the action of dilute hydrochloric acid and iron filings, with strong ammonia as a final wash before polishing. The treatment was varied in some cases. Caustic soda is a strong solvent of oxide of silver, but it is most unpleasant to handle.

Many of the coins are extensively shroff-marked, a feature that has been observed repeatedly in the case of Bengal coins, and few have perfect margins. This is particularly unfortunate, as in consequence it is impossible to determine the mint or the date in the case of types hitherto unpublished. It would, however, be unreasonable to expect to find perfect specimens of all new coins. Some are in fairly good condition, but it generally happens that the date or the place of mintage is missing precisely in those instances where they are most required.

The find includes, in addition to the coin of 'Alāu-d-dīn Khilji, 1 of Fakhru-d-dīn Mubārak Shāh, 12 of Shamsu-d-dīn Iliās, 31 of Sikandar bin Iliās, 42 of Ghiāṣu-d-dīn Aẓam, 10 of Saifu-d-dīn Hamza and 3 of the usurper Shahabu-d-din Bayāzīd.

All the coins of Iliās and Sikandar are of known types, already represented in the Indian Museum. The cabinet gains several new dates, which have been determined with tolerable certainty, although it is a matter of no mean difficulty to decide positively as to the date on imperfect margins, especially in the case of Bengal coins where the script is often crude and the rendering of Arabic numerals is occasionally wild. The only rarity is a coin of Sikandar minted at Fīrozābād. This is of type E in general appearance, but the mint town is designated البلدة المحروسة a term which Thomas gives as the normal appellation, but is not found on the specimens already in the cabinet of the Museum.

The interest of the find increases when we come to the coins of A'ẓam. One of the relatively common type B coins is minted at Satgāon, the words عرصة ستگانو being quite distinct; thus providing the Museum with a specimen of the variety A mentioned by Thomas. It is also noticeable as one of the coins said to have been issued during the lifetime of his father,

although I consider that there is some doubt as to the accepted termination of the reign of Sikandar in 792 H. Four Fīrozābād coins of Sikandar are assigned by Thomas to dates later than 787 H., but the chroniclers are at variance and the dates given by Thomas have in some instances been rejected as wrongly read. That in some cases coins were issued posthumously is certain. The find includes two specimens of the 812 H. issue in the name of A'ẓam, noticed in the Journal of the Bengal Asiatic Society in 1873. These were struck at Fīrozābād, the Capital, and apparently filled the gap between the death of Hamza and the assumption of full regal honours by Bayāzīd.

More puzzling is a coin of A'ẓam, of the ordinary Fīrozābād type, but with a characteristic script of its own. The date is given in words and it is indubitably later than 800 H. The unit is more like اثنين than anything else : but if so the date is inexplicable.

There are two coins of Jannatābād (type E) and in addition there is a distinctive variant unfortunately without a date. While the legend is unchanged the arrangement is altered so as to allow space in the centre for the usual monogram which represents the word Islām. I know of no other specimen.

In his paper of 1867 Thomas mentions as his type No. 2 a subordinate class of coins following the devices of the Mu'aẓẓambād coins (type D of the Museum Catalogue) but struck from less expanded dies and generally of very inferior execution. This class of coins, also assigned to the Mu'aẓẓamābād mint, is quite distinct from the finely executed type G. of the Catalogue, and occurs in two varieties. The larger and better kind has the obverse legend enclosed within a well-cut 8 foil, while the smaller specimens have in its place a rudely scalloped circle. These latter are debased both in character and in metal. They are little if any superior to the worst issues of Hamza and are probably posthumous, like the 812 H. coins of the Fīrozābād mint. The coins of this type, hitherto unrepresented in the Museum, are small and thick, so that margins have almost disappeared, while the proportion of copper in their composition is abnormally high.

One coin of this Sulṭān resembles No. 85 of the Museum Catalogue, though it is somewhat larger, the size being 1·12. The legend on the circular obverse is the same, but on the reverse, also circular, it reads :—

يمين
الله امير
خليفة ناصر و
المومنين

غوث الاسلام
المسلمین
خلد خلافة

There is no sign of a date or in fact of any margin at all. The legend is almost identical with that of the Fīrozābād issues (type H) of Sikandar, but I can find no similar coins of his son.

A variant of type A, No. 66 of the Catalogue, is undated. It is almost certainly from Fīrozābād, but differs from No. 66 in the arrangement of the bottom line of the obverse, the word 'Shāh' following 'Iliās' and not preceding 'Sulṭān,' while the square on the reverse is larger than in the coin quoted and the margins are consequently cramped.

There remains one coin of A'ẕam which is unlike any other type. It is small, the size being but ·93, while there is no margin and both obverse and reverse are circular. The obverse is similar in arrangement to that of No. 65. The reverse contains a long legend, the last portion of which I am unable to decipher to my satisfaction. A tentative reading is :—

الله امیر
یمین خلیفه ناصر
منین
المو غوث الاسلام و
المسلمین خلد خلافة
فیروز اباد ضرب
حضرت ۸۱۲

If the reading of the two last lines is correct—and I am far from assured of this—the coin is not only posthumous, but extremely unusual. The date too is blurred, and possibly is not a date at all; but there can be no question that the obverse legend is of no ordinary type.

The Indian Museum Catalogue deals with only two coins of Saifu-d-dīn Hamza, and both are of the same type. This type is represented in the present find by a posthumous coin of 814 H. identical with that in the Museum. The remaining nine are all different, and so far as I can discover none has been published with the exception of the crudely executed issue noted by Blochmann in Journal Asiatic Society, Bengal, 1873, page 259. This coin was then in the cabinet of the Society but is not shown in the catalogue of the collection in the Museum.

This coarse and clumsy type is represented by three specimens with minor variations. One resembles that illustrated by

Blochmann, but bears the unusual date of 810 H. The second differs only in having a double circle on the reverse, while in the third the single circle is scalloped. The mint name does not appear in any specimen, and the dates are written in very attenuated and spidery lines on the margin. Possibly all these coins belong to the interregnum that followed on the death of Hamza and they cannot, owing to the inferiority of the workmanship, be attributed to Fīrozābād. In execution they are far worse than the Mu‘aẕẕāmābād coins of this monarch, the first, I believe, that have come to notice. These and the others demand a detailed description.

(1) Size 1·10. *Obverse,* as in I.M.C. No. 87, in multifoil.

Reverse, in circular area, as in the coin mentioned.

Margin ...... ضرب هذه السکة فی الاقلیم معظم اباد سنة احدی و

(2) Size 1. *Obverse,* in multifoil—

سیف

الدنیا و الدین

ابوالمجاهد حمزه شاه

ابن اعظمشاه ابن سکندر

شاه ابن الیاس شاه

السلطان

Reverse, in circular area, as in (1)

Margin ...... هذه السکة فی الاقلیم معظم ...

(3) Size 1·15. *Obverse,* in an eight-pointed star, as in (2).

Reverse. Circular area, no margin visible, in very bold and large characters, as in (2).

(4) Size 1·16. *Obverse,* in square area—

سیف الدنیا

و الدین ابوالمجاهد

حمزه شاه ابن

اعظمشاه

السلطان

Margin. Names of the four companions.

Reverse, in circular area—

امیر المو

ناصر منین

غوث الاسلام

و المسلمین

Margin ضرب هذه السكه .... فيروزاباد ٨٠٨

(5) Size 1·07. *Obverse*, in a circle, as in (2).

Reverse, in circular area, as in (2) in small and very sharply cut characters.

Margin ضرب هذه السكه .... تسع و ثمانية

The reading of the date is doubtful, and the place of mintage has entirely disappeared.

(6) Size 1·02. The reading of this coin is very puzzling, the legend being most unusual. The following is merely tentative :—

Obverse, in a circle—

ابن الياس شاه
ابن اعظم شاه
العادل سيف ادنيا
و الدين حمزه شاه
ابوالمجاهد
السلطان

N.B.—The first two lines and the first word of the third are conjectural.

Reverse, in a circle—

يمين خليفه الله
مذين
ناصر اميرالمو سلطان
السلاطين سكندر
الثانى خلد ملكه

If this is correct—and it is difficult to read anything else—this arrogation of titles by the feeble Ḥamza is amazing. The words in the third line are very clear. The coin is in moderate condition, but as ill luck would have it the unusual words are somewhat blurred. I should be glad of other suggestions.

There remain three coins of Bāyazīd I. All are minus margins, which is unfortunate as all are unpublished. Two of them are of the same type with minor variations in the arrangement of the letters.

(1) and (2) Size 1·14.

Obverse, in a circle—

الرحمن
المويد بتائيد
شهاب الدنيا و الدين
ابو المظفر بايزيد
سلطان شاه

Reverse. In an enclosure formed by six inverted arcs—

المومنين
ناصر امير
غوث الاسلام
و المسلمين
خلد خلافة

Traces of margin.

(3) Size 1·12. *Obverse*, in a circle—

المويد
بتائيد الرحمن
سهاب الدنيا و الدين
ابوالمظفر بايز يد
شاه سلطان

Reverse, circular area—

ناصر امير المومنين
غوث الاسلام و
المسلمين خلد
خلافة

Margin .... ضرب هذه السكه فی

The find is both valuable and disappointing, but at least it shows that much remains yet to be discovered regarding the coinage of a very obscure period in the history of Bengal.

Etawah, U.P. H. R. Nevill.

158. A New Copper Coin of Jaunpūr.

The smaller copper issues of the Sharqī Sulṭāns of Jaunpūr are to be found without difficulty in almost all parts of the United Provinces. I discovered not long ago in the Etāwah bazar a coin of this series which, as far as I am aware, is of an unknown type. Not only is it a blend of the larger copper pattern, with the name of the king in a circular area on the obverse, with the common small copper of Ibrāhīm Shāh, but it has the peculiarity of displaying on the margin the full title of the ruler. Even the gold coins of Ibrāhīm and Ḥusen lack the *julūs*, name, but in this specimen, issued in the first year of Maḥmūd, we have the inscription as complete as that of any of Dehlī sovereigns..

Æ. S. 6. Wt. 66.

Obverse. Circular area—

محمود شاه

Margin—سیف الدنیا و الدین ابو المظفر

Reverse, in a circle—

بن ابراهیم شاه

سلطانی

۸۴۴

H. R. NEVILL.

Etawah.

159. A RARE COIN OF SHAH ALAM II.

Mint : Bisaulī.
Metal : Silver.
Size : ·825 inches = 21 mm.
Weight : 170 gr.
Year : R. Y. 14.
Provenance : Kānth (Dist. Murādābād), U.P.

Obverse—

اله محمد شاه عالم
باد

سایهٔ فضل حامی دین باد

سکه

زد بر هفت کشور

Reverse—

مانوس
میمنـــ
۱۴
جلوس سنه لی
بسو

Bisaulī is a town in the Budaun district of the United Provinces. The earliest historical mention of the town is in Ferishta from which the following extract has kindly been sent to me by Mr. H. Nelson Wright: "The King (Firoz) III) appointed one Malik Dāud . . . to remain at Sambhal with orders to invade the country of Katehr every year . . . and not to allow it to be inhabited until the murderer was given up. The King himself also, under pretence of hunting, marched annually in that direction until the year 787 to see that his orders were fulfilled . . . In the above mentioned year he built an exceedingly strong fortress at Bisaulī, 7 kos from Budaun, and called it Firozpūr. But the common people, jocose amid all the oppression they had suffered, called it Akhrīnpūr (the last city); and in truth it happened as they predicted, for the grace of God did not suffer him to construct any more forts or to lay the foundations of new cities and towns, and consequently the fortress continued to be called Ākhrīnpūr" (Tārīkh-i-Ferishta E.D. VI. 299). In 1748 when the Rohillas usurped this part of the country, Bisaulī was placed in charge of Dunde Khān, who built there several houses, a mosque, an *imāmbāra*, and a serai, and lived there till his death in A.D. 1770. The only known coin of Bisaulī is a rupee of Shah Alam II, of this period. It is mentioned in White King's Sale Catalogue, the date being A.H. 1182 = A.D. 1768. It was probably coined by Dunde Khān. After his death his sons divided the estate, and the country was in a state of anarchy owing to the invasion of the Marāthas. They came in 1771, and retired only on receiving the famous bond for forty lakhs executed by the Rohilla leader Ḥāfiz Rahmat and countersigned by Sir Robert Baker. The Rohillas were however unable to pay this sum and the Marathas consequently re-appeared on the banks of the Ganges in 1772. Hearing this news Ḥāfiz Rahmat marched to *Bisaulī* and thence to Asadpur. Reinforcements also arrived from the Nawāb Vazīr of Oudh and English under Col. Champion, and the Marāthas were driven back. The coin now published is dated R. Y. 14 = A.H. 1786-7 = A.D. 1772-3, and therefore belongs to this time. It was struck very probably by Ḥāfiz Rahmat during his stay at *Bisaulī*. No other coins of this mint are known.

PANNA LALL.

160. A Rare Coin of Akbar.

Mint : Anhirwāla Pattan.
Metal : Silver.
Size : 1 inch = 25 mm.
Weight : 178 gr.
Date : 984.
Provenance : Murādābād, U.P.

Obverse and reverse are of the usual Aḥmadābād square area type.

Margins : right .... ضرب
bottom در شهر انهرواله پتن

An identical coin has been fully described by Col. Vost in N. S. XI. I publish this only because that specimen was too imperfect to give a correct reading. The ب in the right margin, and the words در شهر in the bottom margin were missing. Hence Col. Vost took the ا of انهرواله to be the ب of ضرب. He thus called the mint Nahrwāla. As he says *Anhalwāra* was founded by Ban Rāj about A.D. 74. According to a well-known philological rule the "l" was corrupted to "r" and the "r" to "l" giving us Anharwala.

Panna Lall.

161. An Unpublished Coin of Akbar.

Mint : Sūrat.
Metal : Silver.
Size : ·7 inches = 18 mm. square.
Weight : 160 gr.
Date : Abān : 38 Ilahi.
Provenance : Aligarh, U.P.

Obverse—

الله
اكـبـر
جل جلاله

Flowered field.

Reverse—

ابان الهی
٣٨ ـــتـــ
سور
ضرب

Flowered field.

"Surat on the Gulf of Cambay was one of the principal mint towns of the Mughal Emperors after Jahāngīr. The present fort was built in A.H. 947 by a slave of Sulṭān Maḥmūd of Gujarāt in order to resist the attack of Europeans, but the city had become a place of considerable importance by the first quarter of the sixteenth century. In A.H. 980 it was besieged and taken by Akbar, and a rupee is known of Akbar's Ilahi type with the mint spelt صورت (Lahore Museum), but the attribution of this coin to the Sūrat Mint is not free from doubt." H. Nelson Wright, Indian Museum Cat., Vol. 3, p. lxxvii. The coin here described is in a good state of preservation and the name of the mint is properly spelt. The date 38 Ilahi would correspond to A.H. 1001. No other coins of Akbar of this mint are known.

PANNA LALL.

162. A SILVER COIN OF AḤMAD I OF GUJARĀT.

In a short paper contributed ten years ago to the Numismatic Supplement (No. VI) I described five specimens of what I ventured to call "genealogical" coins of the Gujarāt Salṭanat. That name seemed appropriate inasmuch as each one of the five bore the pedigree of the reigning Sulṭan traced back to Muẓaffar Shāh, the founder of the dynasty. These coins are extremely rare Here in Aḥmadābād I have been favourably situated for the discovery of any of this type, yet not once in the course of twenty-four years have I lit upon a single specimen. Recently, however, Mr. C. J. Brown of Lucknow obtained one from a Lāhor dealer, and, as a Mālwā coin was associated with it, not improbably both were originally brought from Gujarāt. The "genealogical" coin Mr. Brown has been so kind as to present to me, and I have now much pleasure in publishing a description of it. One

very similar has long been in the Cabinet of the Bombay Asiatic Society, but its margins are wholly illegible, whereas this newly discovered specimen is in excellent condition, with almost every letter of its legends perfectly distinct.

Here are the coin's elements:—

Metal : Æ.
Weight : 173 grains.
Diameter : 1 inch.
Ruler : Aḥmad S̲h̲āh.
Date : A.H. 835.
Mint : not recorded.

Obverse— In square.

احمد شاه بن محمد

شاه بن مظفر

شاه خلدت خلافته

Margin, upper : في سنه
,, left : خمس و
,, lower : ثلاثين
,, right : و ثمانمائت

Reverse—

السلطان الاعظم

الدنيا و الدين

ناصـــــر

ابو الفتح

The margins, it will be noted, bear the year of issue in *Arabic* words.

خمس و ثلاثين و ثمان مائت

or 5 + 30 + 800 (= A.H. 835, corresponding to A.D. 1431-32).

Nearly all the dated coins of the Gujarāt Salṭanat give their date in figures, but besides the specimen now described a few others are known that record the year in words, these not Persian but Arabic. Most of the coins of this class issued during the decade A.H. 870-880. Mr. Master in a recent letter informs me he has specimens dated 872, 874, 877, 878, 879 and 87x.

Aḥmad S̲h̲āh's father, we note, is styled on this coin Muḥammad S̲h̲āh, and his grandfather Muẓaffar S̲h̲āh, and these were their regnal names. Before their assumption, however, of independent sovereignty, and while still subject to the paramount Dehli Sulṭāns, they were known the father as Tātār K̲h̲an, and the grandfather as Ẓafar K̲h̲ān.

In the absence of any mint-name, one may, I fancy, safely assign these so distinctively regal coins to the mint at Aḥmadābād, the capital of the Sulṭanat, and a city specially dear to Aḥmad Shāh, since founded by himself and called by his own name.

Geo. P. Taylor.

Aḥmadābād.

163. A New Muhar of Jahāngīr.

Mint: Akbarnagar.
Metal: Gold.
Weight: 170 grs.
Size: ·65 inches.

Obverse.	*Reverse.*
اکبر شاه	ماه تیر
نگیر شاه	۲۰ الهی
جهـــــــا	اکبر نگر
نورالدین	ضرب
Flowered field.	Flowered field.

Akbarnagar was a fairly prolific mint of the Mughals for silver, but of gold coins only a few are known. This muhar fills up an existing gap between Akbar and Shāhjahān.

Jagat Prasad.

164. A New Muhar of Aurangzéb.

Mint: Barelí.
Year: A.H. 1113, R. 4 (5).
Weight: 169 grs.
Size: ·85 inches.

Obverse.	*Reverse.*
۱۱۱۳	مانوس
اورنگ زیب عالم گیر	میمنـــت
شـ—————————اه	(ه) ۴ جلوس
زد چو مهر منیر	سنة
سـ—————————كه	ضـــرب
در جهان	بريلي

The mint name has not come out complete on the coin, but it is clearly identifiable as Barelí. The Hijrí year is clear, but the unit of the regnal year is missing, the dot to the right of 4 apparently belonging to the ن of سنه

No gold coin of Aurangzéb from this mint has been published.

JAGAT PRASAD.

165. A NEW MUHAR OF TAIMŪR SHĀH DURRĀNI.

Mint : Bhakkar.
Metal : Gold.
Weight : 167 grs.
Size : ·8 inches.

Obverse.	*Reverse.*
از خور و ماه	مانوس
شـــ————ـيد	میمنـــت
چرخ می ارد و نقره	جلوس ۱۸
ط—————لا	بهـ—————كر
چهرة نقش سكه تيمور شاه	ضرب
كذ——————د	
تا بر	

Legend.

چرخ مى ارد طلا و نقره از خورشيد وماه

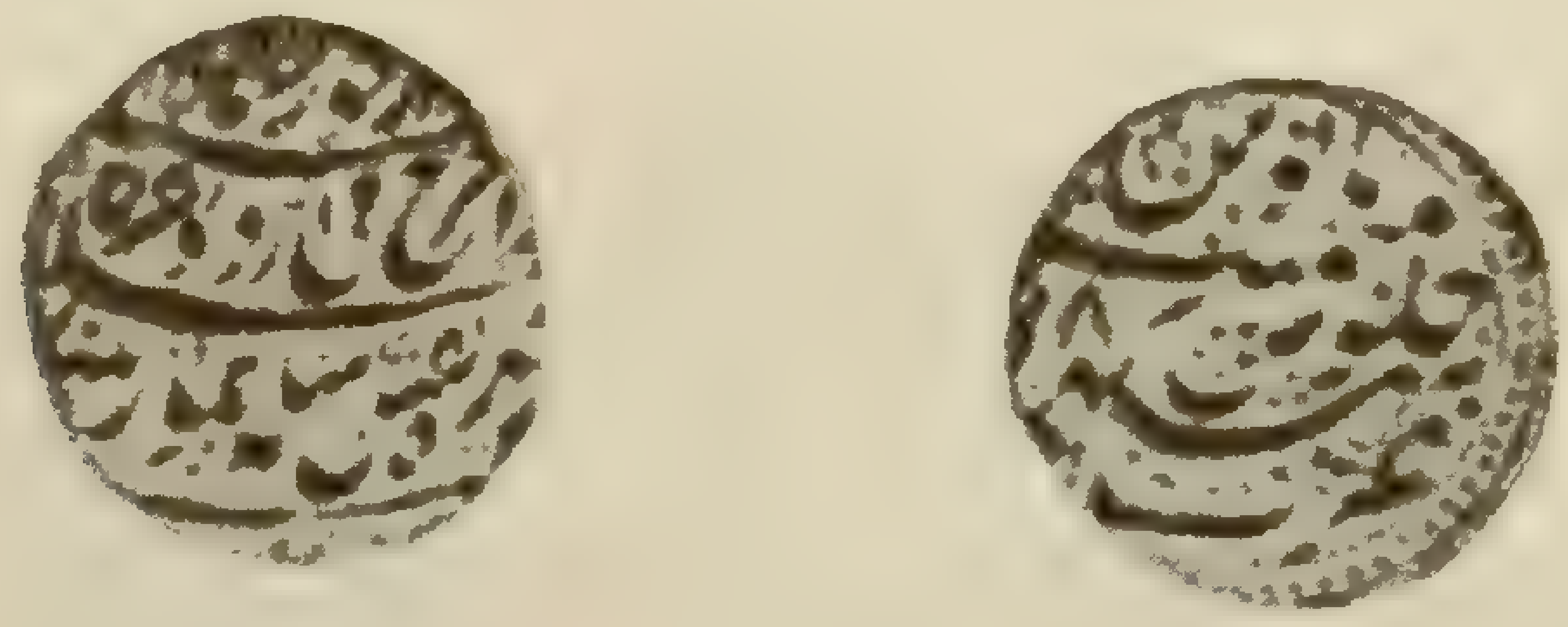
[تا كند بر] چهره نقش سكه تيمور شاه

The revolution (of the heavens) brings gold and silver from the sun and the moon that it may engrave on its face the impression of the coin of Taimūr Shāh.

The legend is the same that appears on the silver coins of Taimūr Shāh. The year is coupled, according to the Durrāni practice, with the Mughal formula for the regnal year. Taimūr Shāh ruled from A.H. 1187 to 1207.

No gold coin of Taimūr Shāh from this mint has been described either by Mr. Longworth Dawes in his "Coins of the Durrānis" (Num. Chron. 1888), or by Mr. Rodgers in his Catalogue of coins in the Lahore Museum, or by Mr. Whitehead in his Note on coins in the Bahāwalpur Toshak khana (N. S. No. XI).

JAGAT PRASAD.



NOVEMBER, 1915.

The Monthly General Meeting of the Society was held on Wednesday, the 3rd November, 1915, at 9-15 P.M.

LIEUT.-COL SIR LEONARD ROGERS, KT., C.I.E., M.D., B.S., F.R.C.P., F.R C.S., F.A.S.B., I.M.S., President, in the chair.

The following members were present:—

Syed Abdulla-ul-Musawy, Dr. P. J. Bruhl, Dr. B. L. Chaudhuri, Dr. L. L. Fermor, Mr. H. G. Graves, Major E. D. W. Greig, Mr. S. W. Kemp, Mr. W. H. Phelps, Dr. D. B. Spooner, Dr. Satis Chandra Vidyabhusana.

Visitors:—Major H. M. Cowie, R.E., Mrs. Fermor, Major C. P. Gunter, R.E., Mr. G. Findlay Shirras, Mrs. Spooner.

The minutes of the September meeting were read and confirmed.

Sixty presentations were announced.

The General Secretary reported that the Rev. J. Watt had expressed a desire to withdraw from the Society.

The General Secretary also reported the death of Mr. A. C. Rigo-de-Righie and Mr. St. John Stephen, Bar.-at-Law.

The General Secretary also reported that the name of Fr. J. Hoffmann, S.J., had been removed from the list of Associate Members at his own request, owing to his leaving India.

The General Secretary also reported that the following gentlemen had been elected Ordinary Members during the recess in accordance with Rule 7 :—

Mr. Atul Chandra Chatterjee, I.C.S., Mr. William Heath Phelps, Mr. R. S. Kanshale, Kaviraj Jamini Bhusan Ray, M.A., M.B.

The following gentleman was balloted for as an Ordinary Member in accordance with Rule 5 :—

Mr. B. M. Atraya, Merchant and Publishers' representative, 9, Tamarind Lane, Fort, Bombay. Proposed by Mahamahopadhyaya Haraprasad Shastri, seconded by the Hon. Justice Sir Asutosh Mukerjee, Kt.

The President announced that Pandit Jainacharya Shri Vijaya-Dharmsurishwarji had been recommended by the Council for election as an Associate Member at the next meeting.

Sastra Visharada Jainacharya Vijaya Dharmsurishwarji is a scholar of great distinction. He is the foremost of the Jaina monks of the Setambara Sect and occupies a unique position in his community. As Principal of the Jaina Yaso Vijaya Pathsala at Benares, and as Editor of the Yaso Vijaya Jaina Text Series, Vijaya Dharmsurishwarji has rendered great service to the cause of Jaina education in India. He has edited Hemchandra's Yago Sastra in our Bibliotheca Indica Series, and has contributed a learned article to our Journal.

The following papers were read :—

1. *The Invention of Fire.—By* H. G. GRAVES.

2. *Demon-Cultus in Mundari Children's Games.—By* SARAT CHANDRA MITRA. *Communicated by the Anthropological Secretary.*

The President announced that there would be no meeting of the Medical Section during the month.

DECEMBER, 1915.

The Monthly General Meeting of the Society was held on Wednesday, the 1st December, 1915, at 9-15 P.M.

LIEUT.-COLONEL SIR LEONARD ROGERS, KT., C.I.E., M.D., B.S., F.R.C.P., F.R.C.S., F.A.S.B., I.M.S., President, in the chair.

The following members were present:—

Maulavi Abdul Wali, Babu Rakhal Das Banerji, Rai Monmohan Chakravarti, Bahadur, Babu Nilmani Chakravarti, Dr. B. L. Chaudhuri, Mr. T. P. Ghose, Mr. H. G. Graves, Dr. F. H. Gravely, Rev. H. Hosten, S.J., Babu Ramesh Chandra Majumdar, Syed Abdullah-ul-Musawy, Maulavi Mahomed Kazim Shirazi, Dr. Satis Chandra Vidyabhusana.

Visitors:—Mr. N. Gupta and Mr. H. C. Maitland.

The minutes of the last meeting were read and confirmed.

Twenty-seven presentations were announced.

The General Secretary reported that Mr Alex. W. Davenport and Babu S. C. Banerjee had expressed a desire to withdraw from the Society.

The following gentleman was balloted for as an Associate member:—

Pandit Jainacharya Shri Vijaya Dharma Suri.

The Joint Philological Secretary exhibited a copy of the Haraha Inscription sent by Raja Prithvipal Singh.

Babu Rakhal Das Banerji exhibited a new type of copper coinage of Chāhadadeva and Anangapāla.

The following papers were read:—

1. *Some more quatrains of Abu Sa'id bin Abu'l Khair.—By* H. D. GRAVES LAW.

2. *Notes on a unique history of Herat discovered in the Buhar Collection of MSS. in the Imperial Library, Calcutta.—By* KHAN SAHIB MAULVI ABDUL MUQTADIR. *Communicated by the Philological Secretary.*

These two papers will be published in a subsequent number of the *Journal.*

3. *The Elephant Statues of Delhi and Agra.—By* REV. H. HOSTEN, S.J.

This paper has been returned to the author.

4. *Taxila as the seat of learning in the Pali Literature.—By* Bimala Charan Law.

This paper will be published in a subsequent number of the *Journal.*

The President announced that the next Adjourned Meeting of the Medical Section would be held on Wednesday, the 8th December, 1915, at 9-30 p.m.

The Adjourned Meeting of the Medical Section of the Society was held at the Society's Rooms on Wednesday, the 8th December, 1915, at 9-30 p.m.

Lieut.-Colonel Sir Leonard Rogers, Kt., C.I.E., M.D., B.S., F.R.C.P., F.R.C.S., F.A.S.B., I.M.S., President, in the chair.

The following members were present :—

Dr. Upendra Nath Brahmachari, Major E. D. W. Greig, I.M.S., Dr. Birendra Nath Ghosh, Dr. Harinath Ghosh, Dr. W. C. Hossack.

Visitors :—Dr. K. D. Banerjee, Dr. Prabodh Kumar Banerjee, Dr. B. M. Chakravarti, Dr. Akhoy Kumar Chatterjee, Dr. Sarat Kumar Das, Dr. Sarat Kumar Dutt, Dr. G. N. Ghose, Dr. J. N. Ghose, Dr. Cecil Webb Johnn, Dr. John N. List, Dr. M. N. Manna, Dr. Satya Saran Mitra, Dr. Suresh Chandra Sen, Dr. Girija Bhusan Sarker, Lt.-Col. H. E. Winter, R.A.M.C., Lt Col. Swinton, I.M.S.

The minutes of the April meeting were read and confirmed :—

Lieut.-Colonel Sir Leonard Rogers, Kt., C.I.E., M.D., B.S., F.R.C.P., F.R.C.S., F.A.S.B., I.M.S., read a paper entitled "The further reduction of the mortality of Cholera to 11 per cent by the addition of Atropine hypodermically to the hypertonic and treatment; with an addendum summarizing the main points in the present system of treatment."

Rai Harinath Ghose Bahadur, M.D., exhibited a case and read a paper "The speedy recovery of a case of Kalaa Zar by intravenous injection of Sodium Antimony Tartrate with Sodium Cinnamate and Berberine Hydrochlor."

Dr. Upendra Nath Brahmachari, M.A., M.D., described his experiences with Plimmer's salt.